DOCUMENT RESUME

ED 038 780 EC 003 469

AUTHOR	Kenney, Helen J.; And Others
TITLE	Improving the Education of Emotionally Disturbed Adolescents Through the Educational Cadre as a Diagnostic, Teaching, and Research Instrument.
INSTITUTION	McLean Hospital, Belmont, Mass.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-5-0979
PUB DATE	May 66
GRANT	OEG-32-31-7525-5012
NOTE	120p.
EDRS PRICE	EDRS Price MF-$0.50 HC-$6.10
DESCRIPTORS	Cognitive Processes, Educational Programs, *Emotionally Disturbed, English, *Exceptional Child Research, *Experimental Curriculum, History, Hospital Schools, Individual Characteristics, *Interdisciplinary Approach, Language Patterns, Learning Characteristics, Learning Processes, Personality, Problem Solving, Psychological Characteristics, Recall (Psychological), *Residential Programs, Social Studies, Teaching Methods

ABSTRACT

To serve emotionally disturbed adolescents in a residential treatment program, an educational cadre was formed to function as a diagnostic, teaching, and research instrument. Specialists in addition to classroom teachers included a curriculum specialist, a cognitive psychologist, and a psychiatric clinician. Experimental curriculum units in English and history were developed around cognitive style, learning and recall, and language. Tests, materials, and projects were developed. Evaluation indicated that the more reflective students gave literal or descriptive interpretations; the more impulsive ones gave answers high in abstraction or degree of affect or general interpretation. Language tests did not render statistically significant results. Observation and student critiques and work products suggested that the experimental material and methods may have facilitated learning. Plans made for the 2nd year of demonstration and research called for categorizing behavior and further investigating cognitive style. (JD)

ED0 38780

FINAL REPORT

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Proposal No. 2627
Grant No. 32-31-7527-5012

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May, 1966

The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

McLean Hospital

Belmont, Massachusetts

PREFACE

Although this summary report was prepared mainly by the principal investigator, it truly represents a collaborative effort of the teachers, and the headmaster of Arlington School, the cognitive psychologists, and psychiatrists, and curriculum specialists, as explicitly conceived in the concept of the educational cadre. The "team approach" in helping emotionally disturbed adolescents is hardly a new concept. However the basic concept that severly disturbed adolescents can learn and that they can be taught more effectively through the careful meshing of clinical, school, and curriculum laboratory resources in a hospital setting still remains to be demonstrated. This is the basic purpose of this project.

This report covers the first year of a systematic attempt to combine the special skills of the psychiatrist, psychologist, curriculum specialists, teacher, headmaster, and researcher to the instructional advantage of the emotionally distuabed adolescent. That he can learn we have demonstrated; that he can learn more effectively under certain clinical and pedagogical conditions we are now exploring in the second year of this continued study. The observations that are presented in this report, hence, should be considered as a preliminary statement to a more intensive report of further study of the instructional and learning processes with hospitalized high school youngsters. To reiterate the most significant aspect of our project: We have demonstrated (1) that many adolescents, in spite of the severity of their emotional difficulty can learn when certain modifications are made with classroom materials and methods; and (2) that the support provided the classroom teacher via the contributions of the various members of the educational cadre can make the school and classroom a valuable adjunct of the hospital and the hospital a vital agent or resource in the school and classroom. But we must acknowledge that much needs to be done in exploring the pedogogic patterns or teaching strategies which are most effective with disturbed adolescents.

This final report incorporates the thinking, planning, and innovations of many clinical, school, and research workers. Two overlapping working teams or cadres developed curriculum materials and methods for use in the history and in the English classrooms. Each cadre included the classroom teacher, headmaster, cognitive psychologist, psychiatrist, and curriculum specialist aided by the researchers. Individual citations are due to all those who contributed to this project.

The determination of the theoretical dimensions and designs and the procedures for the study and assessment of the cognitive functioning in both history and English areas was largely the responsibility of the principal investigators assisted by Dr. Betty R. Stewart of Emmanuel College. The development of special materials and methods in the area of History was first carried out by Dr. Daniel C. Calhoun, Assistant Professor of History and Education, Harvard University, School of Education. With Dr. Calhoun's withdrawal because of his added University responsibilities, his duties were assigned to Barbara W. Harris, Research Associate. Mrs..Harris has been largely responsible for the creative development and refinement of History materials. She has made a significant contribution as a curriculum-planner-expeditor. In the field of

English study the curriculum specialist's role was filled by Mr. Henry Bissex, Head, Instructional Materials Center, and teacher of English, Newton, Public Schools, and Mrs. Margaruite Sarkisian, who left to continue her graduate studies. Both contributed much to the development of new and meaningful experiences in the English classroom.

The classroom teachers represented the core of the cadres. Miss Nancy Frehafer directed the learning experiences in the English classroom. The History classroom was headed by Mrs. Barbara Harris. As can be anticipated, it is the classroom teachers who contributed the most and received the most in return through this demonstration project. Their patient efforts and their insights represent the mainstay of the daily learning-teaching-researching endeavors.

In the planning and conduct of the research Dr. Jerome Kagan, Harvard University, assisted early in our program in identifying, defining, and formulating the specific variables in cognitive style and in developing and refining techniques for measuring these variables . David Cohen, graduate student, Social Relations, Harvard University administered the cognitive style measures. Joseph Walsh, graduate student, Harvard University, taught the unit on transformational grammar during the second term. He also assisted the English cadre in planning, observing, and assessing various aspects of the English program. In the field of linguistics we were fortunate to have the advice and assistance of Dr. Jean Berko Gleason who developed, administered, and interpreted a number of language tests. Throughout the year we have enjoyed the support and zeal of the Headmaster of Arlington School, Mr. John Dunn. In spite of the many demands placed on him and his staff by the research requirements, Mr. Dunn enabled us to operate with maximum effectiveness without intruding overly on classroom performance of teachers or students.

We have also enjoyed the sustaining interest and advice from many members of the medical, psychological, social work, nursing, and administrative staff in the accounting office. Particular mention is due to Francis de Marneffe, M.D., Director of McLean Hospital and our principal collaborator from the clinical field. His general advice and counsel to the school and the research staff have enabled us to function more efficiently in the hospital setting and thus better to achieve the goals of our project. We have also been aided in our research efforts by Alfred H. Stanton, M.D., Psychiatrist in Chief, who worked closely with the staff in the linguistics area and in developing a focus for our language studies in the English classroom. Special mention must also be made of the interest shown and the assistance rendered on the part of Phelps M. Robinson, M.D. in connection with his young patients who became our students. Throughout this project and in our general work in the High School, we have always had the encouragement and assistance of Golda Edinburg, Director of Social Work. Needless to say we could not have run our project without the accounting help received from the Comptroller, Thomas J. Burley.

To the students of the school we owe much for their active participation in the classroom and especially for their help in evaluation. Except for occasional resistance the students in the main entered into our "experiments and tryouts" with curiosity and often enthusiasm. Their frequent and friendly visits to the Curriculum Center down the corridor and around the corner from the Headmasters Office were reassuring to us and to them. In many ways they sensed that the school and the demonstration project aimed to help them and to return them to the community as soon as possible. Finally we must express our personal appreciation for our office staff member Miss Ann Putney who served as administrative secretary to the Research Office. All these members of the McLean Hospial Staff made possible the educational cadres that transformed our written research proposal into a promising reality.

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CHAPTER I

INTRODUCTION

The original demonstration proposal was submitted as a two-year project but was financed on a first year basis. Technically, the present report is final in the sense that it covers the first year activities that were supported by the one-year grant. Actually, the report is substantially more interim in nature since it serves two purposes: (1) To provide an integrative summary of the work of the first year and (2) To delineate the major components of the continuing work of the second year. Since the project grant was renewed for 1966-67, the final report for that year will be a full accounting of both years.

The Problem and Its Setting

1. The Problem: In recent years a high incidence of emotionally disturbed pupils has been reported in the general school population. This has been reflected in an increased demand for a wide variety of clinical and educational services to prevent these young people from becoming permanent losses from the nation's educated manpower pool. For a society committed to humanitarian ideals of service to its citizenry, the need to help the emotionally disabled is obvious.

Throughout the country, state and local agencies of health and education are developing, often in close cooperation, many and diverse programs designed to provide needed clinical treatment along with a continuing formal educational experience. Whatever may be the nature of the clinical service, there is built in, almost invariably, a component of formal schooling or a provision for its inclusion at the earliest possible moment. Indeed, one of the major aims of most treatment programs for the school-age child is to return the child as quickly as possible to the regular school setting so that he can continue with the important developmental task of acquiring an education.

It has become quite clear, therefore, that irrespective of the design features of the program for emotionally disturbed children --residential, day care, special classes in the regular school --there is a common concern with education.

The present proposal derives from a residential treatment program for children age 13 and above at McLean Hospital, Belmont, Massachusetts, a 278 bed, private, non-profit teaching mental hospital in which all types of mental illness are treated. It is a Division of the Massachusetts General Hospital and is affiliated with Harvard University as a teaching hospital. The main therapeutic tools include intensive psychotherapy and milieu therapy as well as all other recognized forms of psychiatric treatment.

In September 1961, a school facility at the secondary level was added on the grounds of the hospital as a significant extension of the rapidly developing adolescent program, The percentage of patients under 21 years of age admitted annually at McLean Hospital has risen from 6% (N17) in 1954-55 to 19% (N 67) in 1963-64. It became increasingly evident during this period that hospitalization can place the emotionally disturbed child in an educational hiatus that can have serious intellectual, educational, social and economic repercussions perhaps for the remainder of the patient's life, as well as complicating his emotional readjustment after discharge. As a service function, the high school program at McLean Hospital meets the urgent educational need of a specific group of students. As a special program within a teaching-research oriented mental hospital it stands ready to try-out innovations in programs, procedures, classroom methods, and materials for the education of the emotionally disturbed.

2. Educational Rationale: The core of an educational high school unit was established in alignment with the following basic premises:

1. The emotionally disturbed adolescent can learn and can be taught during his period of hospitalization.
2. Teachers can play a unique role and function in the hospital treatment program. There are certain specific roles implied in the teaching process. In addition the teacher has an important role in the institutions of which he is a part. Both role behaviors can be defined and prescribed.
3. Teachers trained for regular classroom teaching can adapt themselves and their methods to the special conditions of a school in a hospital setting.
4. Special inservice training activities directed by educational and/or psychiatric personnel can provide initial support and develop the competencies required in dealing with the educational needs of the emotionally disturbed adolescent.
5. The curriculum and operation of the school can be determined by experts in the field of education in mutual collaboration with experts in the field of psychiatry.

The enunciation of these premises has been gradual. Our theoretical predilections concerning the education of the emotionally disturbed adolescent are becoming, we must admit, much clearer as we go along than when we started. The very fact of transplanting a formal school organization from its natural habitat --the community --to an unfamiliar setting -- the hospital -- creates a host of questions, issues, and conflicts bearing upon the implementation of a formal educational program. From the outset, however, we were sustained in our effort to forge a meaningful and distinctive position for the school with the general treatment program by the willingness of both educational and clinical personnel to engage in continuous dialogue. It goes without saying that the successful outcome of such a dialogue is a direct function of the degree of open-mindedness of the parties concerned. In less than favorable circumstances the bringing together of two disciplines, both vitally concerned with effecting change in the individual and both with clearly developed professional cultures of their own, might become deadlocked in a fruitless attempt to dichotomize "education" and "therapy" and to protect professional prerogatives. In the benign climate of mutual respect there is little need to waste energy in repelling unwelcome intrusions into the other's particular field of competence.

The issue is clearly drawn, at least in broad outline. The therapist works for pervasive changes in the attitudes, motivation, self-perception, and views of the individual. The teacher strives to bring about changes also, but these are more circumscribed, having to do with the acquisition of knowledge, skills, and cultural ideals necessary for the individual to participate effectively in the affairs of society. In the instructional process the teacher does not ignore the need for understanding and responding to the emotional component of learning. Indeed, the cleavage between cognitive and affective processes exists at present only in the practice of some teachers who either do not know of or cannot accept what our best knowledge tells us about human learning.

From the beginning, the purpose of the school was defined as providing education not treatment, although important, beneficial therapeutic side effects were expected. Of course, a good education that enables fulfillment of one's capacities and which culminates in self realization is therapeutic. We have had to emphasize this distinction in order to define accurately the relationship of the school to the total complex of the hospital environment, as well as to provide full opportunity for the internal development within the school of an educational program meeting appropriate educational standards. This concept of the school shaped its day to day operations and the management of the patient-students within it. The school was close to the model of the work program of the hospital in which some of the service departments engaged a number of patients in an activity where the purpose was clearly the performance of a certain task such as laundry, typing, cleaning, etc. This is in contrast to the occupational therapy model where the reason for the patient's presence in the department is not to complete the task so much as to gain therapeutically from the experience.

In fact, the overall philosophy of the hospital provides a rationale for the educational unit as we have defined.it. It is believed that adult men and women patients, as far as their clinical condition allows, should engage in real life work situations, Behind this is the idea that the hospitalized psychiatric patient in his progress toward recovery and full participation in the life of his community needs opportunities for graduated participation in many different working and social situations. For adolescents the need is primarily for the actual educational preparation they receive in the hospital school. At the same time they are given an opportunity to make the transition back to school in the open community by way of a specialized school experience which can provide the individual attention and support needed in the acute stages of emotional illness.

All students take general academic course work which if completed successfully can be used for credit toward a high school diploma. The school has been approved as a private educational unit by the Town of Belmont School Committee. The administrative and teaching staff had no special training or experience with emotionally disturbed students prior to coming to Arlington School.

3. General Objectives and Specific Questions: In the second year of the school's operation (1962-63) a grant from the Medical Foundation Inc., of Boston activated a two-year exploratory program of research with the broad purpose of studying the special problems encountered in the education of the emotionally handicapped adolescent. The major learning and teaching problems which emerged from this study shaped the objectives of the present project. These problems of instruction and learning fell into the following areas:

(1) Pacing of Instruction to Style and Speed of Learning

What constitutes a satisfactory learning episode is a crucial problem for the teacher of the emotionally disturbed student. If learning is viewed as a continuous cycle of meaningful events, it is clear that entry and exit points along the entire route of learning must be determined individually for each student. An individual difference dimension that exerts profound influence on the depth and range of a learning episode is one which has been labelled by Kagan et al.[1] reflection - impulsivity. Many Arlington School students can be grouped into two major categories and viewed as the extremes of a continuum from impulsive learner to cautious learner. These characteristics of learning style appear to have some relationship to the type of emotional illness disabling the student -- the character disorder more frequently found among the impulsive learners than among the schizophrenics who tend to be more timid and restricted in their encounters with ideas but yet at times appear more probing.

(2) Utilization of "Off-Beat" Thinking

Many Arlington School students, as their teachers have noted, display an "off-beat" type of thinking that, if a little less inhibited, would be welcomed as a promising indication of creativity. As functioning, however, this ability to see ideas and problems in novel ways appears not to lead to productive learning outcomes.

(3) Learning and Recall

The students were found to have a variety of difficulties in learning, the majority of them centering around attention, retention, and recall. While the principal problem of human memory may not be storage, but retrieval, as Bruner proposes, the teacher of the emotionally disturbed sees attention, or better the lack of it, as perhaps the most serious block to learning. Before information can be stored, there must be a directive process that exerts a selective influence on perception and other cognitive processes, the direction deriving from the intention of the learner and/or from the nature and specific demands of the material to be learned. This is commonly referred to as attention.

Attention, is, of course, a necessary but not sufficient condition of learning. Once attention has been captured, then the acquisition of knowledge, problem solving, skills -- in short, the full range of learning situations -- can begin. Both retention and recall are the direct result of effective learning in the first place. While both processes are concerned with memory of learned material, recall further involves the ability to select relevant information for application in later problem or question contexts. [2]

(4) Language as a Tool of Learning

Whenever a learner gets"to know something", he does so by virtue of having subjected the thing known to some form of representation that allows him to retrieve, manipulate, and use it. For "knowing something" is not simply storing it but, rather, being able to muster it for action when it is relevant to present need. How a human being codes and processes past experience determines how available it is for later use. Language allows the learner to translate experience into a symbol system that can be carried in the head and operated upon there.

The language of the emotionally disturbed child was one of the most frequently encountered learning blocks in our two-year study. On the one hand there may be a sheer paucity of available or accessible language to encode a given learning experience; on the other hand a too ready supply of language, or "glibness", misleads a teacher in appraising the real outcome of a learning experience. In either case language is not being used as a tool for effective learning.

The framework of the project was thus broadly outlined by the findings of the Medical Foundation study. The basic aim would be to design, demonstrate, and evaluate some instructional techniques to be used with emotionally disturbed students with a special focus on: 1) identification and study of individual cognitive styles, primarily as defined by Kagan's work, and the relation of cognitive style to the learning process; 2) the problems of learning and recall; 3) training in cognitive skills; and 4) language problems.

In the next chapter, a detailed specification of these educational concerns and a description of the experimental curriculum units which were designed to solve some of the problems associated with them will be given.

CHAPTER II

THE DESIGN OF THE PROJECT

This chapter will report the two main features of the project: (1) the composition of the project team - the educational cadre which was to function as a diagnostic, teaching, and research instrument, and (2) the project activities themselves with their underlying principles.

The Educational Cadre

The educational cadre was organized to bring together a group of specialists to work with the classroom teacher who is the direct agent of instruction. These specialists were: (1) a curriculum specialist who is an expert on content or the substantive aspects of the teaching-learning transaction and the media -- materials and methods of instructions-- which constitute the contingent link between the teacher and learner; (2) a cognitive psychologist who can serve as an effective intelligence agent in feeding back information on how the material is being handled by the students to both the curriculum builder and the teacher in such a form as to aid in the decisions that must be continuously made concerning the following: how to make material comprehensible, how to activate students in relation to it, what kinds of breakdowns in comprehension are developing, how well is the material transferring, etc.; and (3) the clinician (psychiatric) who can help the teacher gain insight into the psychodynamics of emotions and hospital treatment as they affect the learning process. The "cadre" concept has developed from the notion that it is the personal agents of education (in this case the working aggregate of teacher, curriculum builder, psychologist, and clinician) which in the final analysis constitutes the essential nucleus around which the expanding organization of an educational enterprise is developed.

Perhaps a further word about the particular role of the cognitive psychologist is in order since he does not usually appear on an educational planning team. In general, a cognitive psychologist studies the ways people gather, organize, evaluate, store, utilize, and communicate information about themselves and the world they live in. The potential significance of the research on cognitive processes in education, medicine, the art and science of communication, and in technology is evoking widespread interest and support. The work at Harvard's Center for Cognitive Study in the development of thought and human information processing is beginning to shed some light on what can be called the theory of instruction -- the rules for facilitating or increasing the transferability of learning. The cognitionist is appearing on the educational scene in the highly important role of mediator between the substantive specialist who has the responsibility of getting what is to be learned (we are using _substantive_ here in a very broad sense so as to include any branch of knowledge that has a genuine ideational content) and the teacher who has the job of getting it communicated to a group of learners. The particular concern of the cognitive psychologist may be with the various classes of cognitive skills for acquiring knowledge, understanding phenomena, solving problems, and creating new forms of ideas but this does not mean that he is not interested in motivational and attitudinal factors in receptivity to learning. Quite the contrary. In this period of massive educational reform the base of education is constantly being broadened to comprehend the presence of motives that facilitate or inhibit attention in learning and problem solving situations. It is the clinician, however, who has the special expertness in understanding the pathology of thinking.

Two working cadres with the general membership described earlier were formed to concentrate on selected courses of study in the ongoing, regular school program. One focused on the English and the other on the Social Studies curricula. Plenary meetings were held every other week in which all project staff participated. These were informing and strategy planning sessions which served also to coordinate the activities of the two working cadres. Each cadre met every week to work out the details of curriculum material and methods in line with the strategies developed in the plenary meetings. The two project assistants maintained continuous contact with the classroom teacher by assisting in the development of specific material and methods of presentation to be used in the classroom. These assistants also observed student reactions to the experimental units in the classroom and conducted instructional interviews with individual students in order to obtain information on how the students were dealing with the experimental material.

The Experimental Curriculum Units
Basic Principles, Materials, and Methods of Presentation

Basic Principles: The experimental units were developed in whole or in part around three main concerns: cognitive style, learning and recall, and language. Before proceeding to the description of the specific units, a discussion of the basic ideas governing the development of these materials and methods is necessary.

1. Cognitive Style[3]

A major focus of the project was to study cognitive style and its relation to a number of basic educational concerns. We formulated the following questions, around which the instructional programs to be designed would be oriented:

a) In relation to particular subject matter: Do some cognitive styles and some subject areas "match" better than others?

b) In relation to its effect on the student's efficiency as a learner: Are some cognitive styles generally more effective for academic learning, regardless of subject matter?

The following questions were selected for their direct relevance to particular concerns in educating the emotionally disturbed:

c) In relation to the effects of the interactions of individual cognitive styles in the classroom: How are individual learning processes affected when students with quite different cognitive styles interact in the classroom?

d) In relation to different types of emotional illness: Do subjects with similar cognitive styles tend to have similar psychiatric diagnoses?

These four questions have directed the activities of the project staff in connection with the component of cognitive style in the learning process. With the beginning of classes on September 13, a four-step general procedure was initiated to obtain information to answer the four guiding questions. First, it was necessary to establish defining criteria for the aspect of cognitive style to be studied. Second, we had to select standardized measures for identifying cognitive styles in students. Third, we made observations on manifest cognitive style functioning in direct student behavior both in the classroom and in the instructional interview. Fourth, we considered how questions c and d, having to do with the interaction of cognitive style and types of emotional illness, might be answered.

First: The question of definition and its answer: reflection-impulsivity -- a dimension of cognitive style.

A basic premise of the present study is that there are many interacting dispositions within a student that ultimately affect the quality of his learning. A related premise is that the "blatant individual differences in cognitive activity among students of adequate I.Q. at any one age" can be ascribed to cognitive style.[4]

One such disposition is the student's tendency to reflect upon the elements in a problem situation, in contrast to an impulsive and unconsidered response. To make clearer the significance of a preference along this dimension, the following model is presented.[5]

Cognitive Units	Cognitive Processes	Attention, Defence (Motivational Factors)
Vocabulary	Labeling (applying vocabulary and rules)	Character of material
Rules	Evaluation	Surprise value of content
	Induction/Deduction (implementation of rules)	Personal motives
	Hypothesis production	Motivational conflicts

These three skeletal variables are concerned with performance, since it is only the learning product, the performance itself, that can be measured, not the learning process. The first set of variables accounts for cognitive units. The two major variables within the units are a vocabulary set (or set of labels) and a set of rules. Rules are relationships among units. Ohter variables could be listed here, but vocabulary and rules are the most important.

The second set of variables refers to cognitive processes, or hypothetical events in which these units are manipulated. First there is a labeling or comprehension process. Second there is an evaluation process. This is where reflectivity and impulsivity reside. To what degree does a pupil evaluate the validity of a label or the validity of a rule he has applied? In other words, to what extent does a pupil pause after he has labeled the problem to check his comprehension? The third process involves induction and deduction, or rule implementation, and culminates in the production of an hypothesis. Reflection-impulsivity is highly important because it touches the problem-solving process in three different places -- labeling, evaluating, and hypothesis production -- while no other style does. The impulsive student would initiate a reasoning sequence suggested by the first hypothesis that occurs to him and/or report an answer without sufficient reflection on its possible validity. Even in the process of reporting, primarily relevant in an academic setting since it is not utilized in private problem solving, reflection-impulsivity enters the picture. To what degree does the student evaluate his answer before reporting verbally? He may garble his syntax and not be able to report correctly the answer he knows. He then gets the feedback that he is reporting incorrectly, and the teacher concludes that he does not know what is going on.

The third set of variables concerns attention and defense. Attention is determined by the character of the material (color, novelty, clarity, etc.), the surprise value of its content, and motivational or personal factors. The degree to which the material helps the student to achieve his goals and the extent to which the material threatens him will determine the amount and quality of attention and defense.

Individual differences are generally noted in relation to motivational variables, possibly because they appear to be more obvious obstructions in learning and performance. The present study, however, is concerned not only with these individual differences, but also with individual differences in the cognitive processes, and particularly a student's consistent tendency to display slow or fast response times in learning situations.

Second: Measures of cognitive style.

Once cognitive style was defined, the next step was to select methods of identifying cognitive style in individual students. The following tests were selected to provide the basic measures along the reflection-impulsivity dimension:

(a) Matching Familiar Figures. In this task the student is shown a picture (the standard) and six very similar pictures, only one of which is identical to the standard. The student selects the one stimulus that is identical to the standard. The standard and the variations are kept in the student's sight while he makes his selection. The major variables scored are number of errors and average response time to the first selection.

(b) Haptic-Visual Matching. In this task, the student first explores with his fingers a styrofoam form (approximately 3 inches square) to which he has no visual access. He is allowed an unlimited time to explore the form, and when he withdraws his hand, he is presented with a visual array of five stimuli, one of which illustrates the form he had explored haptically. The student has to select the visual stimulus that corresponds to the form he has explored. The ten-item test contains geometric forms, as well as familiar objects, and yields three variables: errors, response time, and palpation time (i.e., the time the student devotes to tactual exploration of the styrofoam form).

Third: Evidences of cognitive style in student performance.

To determine whether it was possible to identify direct behavioral manifestations of reflection-impulsivity in the student group, extended observations of the day-to-day functioning of the students in the History and English classroom situations were carried out by the research assistants, and students were interviewed individually. For illustrative purposes, the following excerpts from the English interview data have been selected to represent the strong preferences for reflection and impulsivity that have shown up in the student group.

Here is an exchange between the interviewer add a student in English 10 regarding the interpretation of "Fire and Ice" by Robert Frost.

Int: Okay, what's he saying here?

Joe: I think he's pretty superficial.

Int: Okay, tell me what you think is superficial. What is the meaning that you thought there was in those lines?

Joe: He was talking about the end of the world.

Int: I see.

Joe: He really doesn't care how it ends. It doesn't matter. He just thinks it's going to end. Period.

Int: What line? Can you find a line that really told you that?

Joe: Well, it's the whole thing really. I mean almost all of it,

Int: You don't feel that he's saying something else, beyond that, or in addition to that?

Joe: I don't think so.

Int: Why the title? Did you think there was any importance in his use of the words of fire and ice, or the ideas of fire and ice? They represent what two extremes?

Joe: Sure. That was probably just some general idea of how it's going to end.

Int: So you think it just ties into this rather than having any other meaning? Over here in this line he says, "I think I know enough of hate/To say that for destruction ice/ Is also great/ And would suffice. What does that passage mean? He talks about hate. I wonder if you see any connection there between hate and ice.

Joe: Well, I think he's making the connection with hate and the fire. And since he's saying that he doesn't want hatred and that hatred is related to hell, which is related to fire.

Joe is giving impulsive, self-terminating responses that leave him with a half-formed understanding of what the poet is saying and a too literal interpretation of the poetic devices in the verse. Even when he reads something that seems to appeal more to him such as A. E. Housman's "Loveliest of Trees", his failure to delay response leads him into similar difficulties.

Joe: It's about an old man, who enjoys some of his last years in the spring. He and the trees and the woods and all that.

Int: What made you decide he was an old man?

Joe: "Now of my threescore years and ten." He's seventy.

Int: And is there anything of his philosophy of life here, do you think? Do you find any line there that tells you?

Joe: The first two and the last stanza. "And since to look at things in bloom,/ Fifty springs are little room." He's saying that you don't have much time, you should enjoy it while you can.

Int: Okay. And in a way then you might say that this tree that he's talking about, the cherry tree, really represents...

Joe: Happiness.

An interesting contrast to impulsive Joe is Mary who was also in English 10.

Inte: If you look at it in terms of title, might we make any assumptions about the subject matter if you weren't to read the rest of it? Just look at the title.

Mary: It's his interpretation of the loveliest tree, the tree he thinks is the loveliest of all trees.

Inte: Okay, in keeping just to that level now, what do you think would be a fairly simple explanation of what he's trying to say?

Mary: In the first stanza he describes the cherry tree. In the line "Wearing white for Eastertide." the cherry blossoms of white, which come out around Easter time. It speaks of his age, and he feels that half of his age, the first half of his age, he couldn't live again because those are the ages of developing and of learning and of forming ideas and everything. And he realizes his life, he speaks of his life, living fifty more springs. And although that's a lot when you really think about it, it's very, a very short perio of time. And then he realizes that, ah, he comes right out and says, "Fifty springs are little room", that it's a short period of time, And he takes advantage of the time to go and look at the beauty, maybe the first of the next fifty or you could say that he's looking forward and seeing snow, snow meaning really snow, and seeing that as death.

The interviewer in summarizing the interview had this to say: "Mary had little difficulty in discussing themes of poetry in highly abstract terms. She discussed "Loveliest of Trees" in a very thoughtful manner, moving with ease from the concrete details in the work to a more abstract consideration. If one were to type her mode of thinking at this time, it might be safe to hypothesize that she is more reflective than impulsive."

This sample of the data has been presented to show how cognitive style may be demonstrated in direct student performance. While evidences of reflection-impulsivity do show up spontaneously and frequently in the normal classroom interaction, the instructional interview was an even more valuable source of data on this aspect of learning. Its flexibility, the opportunity it provides for intensive study of the individual, the richness of observation it permits -- all have proved important for the exploration of basic features of cognitive style behavior.

Fourth: Implications of cognitive style.

(a) Subject matter and student efficiency as a learner.

In relation to particular subject matter, the question was raised: Do some cognitive styles and some subject areas "match" better than others? An examination of the usual course in English revealed that it is not a unitary subject area, but it is composed of several different curriculum zones. It was hypothesized that, as just described, English and History could require differing degrees of reflection-impulsivity in certain learning tasks. For example, one might expect that the student who could give direct and spontaneous expression to a rich flow of ideas would function better as a creative writer. Impulsivity might also lead a student more quickly to an intuitive appreciation of imagery in literature than would a reflective attitude, which might anchor a student more closely to precise and literal interpretations.

On the other hand, the study of History demands the act of reflection. The student in studying History must constantly operate intellectually in these three ways: 1) seeking to discover what is pertinent to the subject in his reading, 2) seeking to structure what he selects, or evaluates to be significant, and 3) asking the question "why?'. The student whose natural inclinations prompt him to reflect over the differential adequacy of several hypotheses and to consider the quality of an "about-to-be reported answer" should gain a great deal from a course in History.

General experience at the school had indicated that the students involved in the study lie at the extreme ends of the reflection-impulsivity dimension. Unlike the majority of students in the middle range of the distribution, who are both reflective and impulsive and who can shift styles to meet the varying demands of different subject areas, the emotionally disturbed student is more restricted in his choice of response and he exhibits his responses in a highly intense form. The impulsive student is frequently impulse-ridden; the reflective student is often compulsive.

(b) Interactive effect of individual cognitive styles in the classroom.

The clash of cognitive styles is one of the most vexing situations a teacher of the emotionally disturbed meets. The difficulties in maintaining polar opposites in cognitive style in the same classroom were only too obvious to the teachers at Arlington School. For example, Anne, a highly impulsive girl who previously had shown condescension and scorn to a very withdrawn girl, Betty, noted that the latter was not taking notes as were the other students in a class in World History. Anne looked over at Betty sitting a few seats away and said in a quiet voice, "Betty, are you taking notes?" Betty started then to take notes along with the others. During the same class, Anne, who had in the past contributed more than her share to class disturbance, independently tried to get the class back on the track when it was becoming unruly. Along a similar line is this exchange in the American History class:

Teacher: Eddie, what do you think of Garrison's _The Liberator_?
Eddie: Oh, it's exciting, fantastic, interesting.
Teacher: Have you read it?
Eddie: No.
Teacher: You really should read it. It's really fun.
Eddie: (turning to Sam) Oh, it's really fun!
Sam: It really is fun, Eddie.
Eddie: Maybe I'll read it then.

These episodes were only indicative at best, but they did point to the real possibility that student interactions might be manipulable.

(c) Relationship of cognitive style to type of emotional illness.

The question here is: Do students with similar cognitive styles tend to have similar psychiatric diagnoses? The basic approach to this question had been to examine available psychological test data on each student. Beyond that, the work of Thomas Achenbach at the University of

Minnesota was studied to see what light his findings shed on the relationship between psychodynamic organization and cognitive style. Achenbach examined and did a factor analysis of the symptoms recorded in the case histories of 300 male and 300 female child and adolescent psychiatric patients. There was a general dichotomy given the label "Internalizing versus Externalizing", which can be thought of as impulsive versus brooding acting out. The similarity between this classification of psychiatric symptoms and the reflection-impulsivity dimension suggested a fruitful point of departure for research into the general problem of the interference of neurotic and psychotic processes with the learning processes.

2. Learning and Recall

In this section brief descriptions of the instructional problems encountered in teaching English and History to the emotionally disturbed student will be given.

(a) English: The following remarks about the learning difficulties noted in the English area are based on classroom observations, instructional interviews, and discussions with the teacher. Organizational difficulties are clearly apparent in the data obtained. It takes continued and sometimes vigorous adult intervention to get the students to stay with a discussion. They go off in irrelevant directions; they bring in information that has something to do with the topic but does not address the point directly; they provide loose organization to their ideas.

Instead of step-by-step thinking out of the problem, which is often necessary, students frequently ignore details or intervening steps and leap boldly to a conclusion. This characteristic was noted not only in composition writing but also in the interpretation of literature where subtleties and nuances were ignored.

In a sense an opposite difficulty consisted in the student's not pushing his thinking far enough, being satisfied with taking a single short step. The terminal point, as mentioned earlier in the interview with Joe, is reached too quickly.

There were many other observed difficulties which point to vagueness and evasions in the thinking of the student. They sometimes used abstract terms without any real referent and sometimes were excessively concrete. Their concepts were at times crude and undifferentiated.

One characteristic, however, was especially prevalent in the student group. They have little capacity to work towards deferred goals. Most of the students require immediate rewards for their efforts.

(b) History: For an intensive investigation of the problems an emotionally disturbed adolescent faces in his attempts to grasp the concepts of history, two History classes at Arlington School were chosen--World History and Modern European History. In general, students in both classes typified many of the basic problems blocking the learning process.

In the World History class of seven students, a problem of major importance to the whole learning endeavor was to attract and to maintain student attention in the face of strong personal preoccupations related to their illnesses, which resulted in disruption of the class and in withdrawal from the class. They displayed a marked tendency to reject subject matter which struck them as depressing, even when its objective content would seem quite neutral. At times it was nearly impossible to reach some students because they reacted hostilely to everything the teacher attempted at that time.

Students in this group ranged from a very concretely functioning and withdrawn student to an unusually capable student, requiring as much challenge as the course and teacher could provide. As a group, however, their level of cognitive development was rather immature and uneven. This kind of ability range is one familiar to anyone teaching emotionally disturbed students, placing heavy demands on teacher ingenuity to plan curriculum which will be meaningful to all students.

In contrast to the class in World History the class of seven students in Modern European History were less disparate in intellectaal ability and in their emotional ability to function intellectually, were less overtly disruptive, and were less prone to become preoccupied with a single idea, or even in some cases with the very words in a sentence or idea, which has a stalling or disruptive effect in a classroom. In this class, the problems of learning and teaching were related to the bright and intellectually motivated but emotionally ill student, and to the non-involved student. Non-involvement was expressed in two ways, either by being virtually intellectually absent from, although physically present in, the classroom, or by steadfastly refusing any active participation in the class. The latter occurred not only on the level of taking test, etc., but, indeed, on any level (speculation, discussion, game playing, etc.).

There are, in addition, certain problems of special relevance for the study of history. A student must be able to sequence materials in order at the lowest level to see chronological relationships, at a higher level to see cause and effect relationships and possible extrapolations to new situations. He must also be able to see the complexities of an issue, withholding judgment rather than jumping to a quick "black or white" judgment of events. He must maintain a degree of objectivity as uncolored as possible by his own attitudes and prejudices. He must also be willing to deal with the remoteness in time or place of subject matter and with textbook material that is so general as to be virtually meaningless.

These difficulties can often be overcome by the student's willingness to reflect and his interest in or sense of wonder and astonishment at people, places, or events that are very vivid or are very different from anything he, the student, has experienced. Emotionally disturbed students, however, are usually so absorbed in their own problems that they find it difficult to detach themselves enough from them to reflect on outside events. In addition they are so little motivated by the usual academic incentives that they often will not make the intellectual effort of taking remote events or personalities and studying and analyzing these events and personalities until they have some real meaning, (through seeing their significance or analogy to present day occurrences, etc.) Moreover, these students show surprisingly little interest in or indeed tolerance for people or things that are different, and an equally surprisingly small sense of wonder or astonishment at things that are generally considered unusual or even bizarre. Another common trait which is largely, if not surprisingly, absent in emotionally-disturbed students is a healthy sense of humor -- although this absence is probably not as crucial in the teaching of history as in the teaching of English.

3. Language

In studying the language of emotionally disturbed adolescents there have been both practical and theoretical goals. While the primary purpose of the project was to develop specilized curricula, it seemed worthwhile to look for answers to real general and theoretical questions. Since language is so crucial in academic learning, information about the student's level of language functioning should be an invaluable aid to curriculum development.

, From the standpoint of theory we were anxious to know if an emotionally regressed patient would also show his regression in purely linguistic ways. Most ot the tests employed had previously been given to a large group of small children and to a control group of students at the Massachusetts Institute of Technology. The areas under consideration were word association, etymology,and definition of vocabulary words.

The word association test consisted of 36 items, clearly marked as to part of speech. There were six nouns (like _table_); six adjectives (_dark_); six mass nouns (_milk_); six transitive verbs (_to send_). Earlier experiments have shown that adults tend to respond with the same part of speech as the stimulus word, while children are more apt to respond with a word that might normally _follow_ the stimulus word in English, thus, given the stimulus _to walk_, an adult tends to say _to run_, while a child supplies home.

The next test consisted of a number of compound words with fairly obvious, often absurdly obvious, etymologies. The subject was asked why he thought the word in question (birthday, Thanksgiving, etc.) is so named. Small children go through several stages in their answers to questions of this sort. The first is the identity answer: a blackboard is called a blackboard because that is what it is. Next comes a functional or salient feature response: a blackboard is called a blackboard because you write on it. Then some part of the word is recognized as relevant - a blackboard is called a blackboard because it is black. (Since most blackboards are now green, this item is rapidly becoming obsolete.) Finally, in the vocabulary test, words were presented in sentences and the subjects were asked to give a good short definition of the word. We tried to pick fairly common words since we were testing the possibility that these students may have private or deviant meanings for common words, thus making communication with them even more difficult than it might otherwise be.

Copies of each test appear in appendix A.

In the next section the experimental curriculum units which were designed to deal with the range of learning problems just described will be presented in detail. But a brief review of the basic operating procedures of the working cadres is appropriate at this point.

The enumeration of learning problems was the preliminary and initial task of both cadres and was in itself an essential step in evolving the curriculum project.

After a discussion of the problems, a strategy of general approaches to try to overcome these problems was formulated. The strategy was determined in a number of ways. It was based partially on references to educational and intellectual approaches which had been used elsewhere to meet what seemed to be an analagous problem. Other approaches were based more on intuitive "hunches". These in turn were based on insights or "clues" gained in classroom observations and in the day to day personal contacts between the students and the classroom teacher and project assistant. These latter had taken place not only in the more formal atmosphere of the classroom but also in the more casual day to day encouters and conversations in the halls, coffee shop, etc. Some approaches were suggested by something as seemingly inconsequential as one student's random remark to another. Ohher approaches were based on an even more "intuitive" judgement predicated on reflection about what the student's entire (as opposed to just his school) day must be like and lacking. Since the student's attention or interest had to be attracted before any learning could take place, efforts were made to discover what interests or things that could be utilized in the classroom had appeal for the emotionally-disturbed adolescent. An effort was made to discover emotionally-disturbed students' "base" interests -- i.e., those interests or things having some universal appeal to all the students, even those who were so depressed by and absorbed in their own problems as to appear to have no interests at all. Many of the approaches in this category were designed in great part to try to overcome by their novelty and their interest appeal what may be not only the initial but possibly the most serious obstacle in teaching adolescents deeply and seriously immersed in their own emotional problems. That problem is gaining and sustaining the student's attention enough to keep them in contact with the academic material, for this contact must take place before any learning can occur. The instructional interview proved to be a rich source of useful information. See Appendix B for a description of the instructional interview.

After the problems had been enumerated and possible solutions suggested, the working groups then structured the content and calendar of the curriculum and prepared to interject as many of the various approaches as possible at appropriate places in the curriculum.

Experimental Curriculum Units

1. History

(a) General Approach:

The history materials were planned as short, self-sustaining units tied together by broad general questions or themes, thus taking into particular account the problem of absenteeism. The basic principles underlying the curriculum developement were: 1) to capture and maintain attention through varied and rapid pacing of activities; 2) to take into account individual modes of response preferences; e.g., aural, visual, gustatory, by presenting concepts in differing modes; 3) to present as much concrete material as possible to give the students experiences from which to develop iconic and even enactive representations, before asking them to understand and develop symbolic representation; 4) to give them active training in research skills, techniques for searching out and developing conceptual relationships, and flexibility in thinking.

The materials or approaches which were tested will now be catalogued in the order they were interjected on the curriculum schedule.*

(1) Notebook Project:

In order to encourage independent sustained study, notebooks were purchased for the students and they were told to henceforth take nightly reading as well as classroom lecture notes in them. A secondary purpose was to provide the students with a much needed study aid for examination periods, a time of high anxiety. As this project would involve a formidable amount of intellectual drudgery, it was expected that it would at most prove only an introduction to or relatively short-lived effort at sustained independent work rather than a task conscientiously performed throughout the term, and that students would need some special or novel inducement even to agree to try it. Explanations were planned emphasizing the future benefits of such notetaking. Explanations of this sort, however, are at best of doubtful appeal to emotionally disturbed adolescents. Therefore, some more tangible, concrete appeal possessing an unexpected or novel element was needed. It was decided to use an object with snob and status appeal which would cater to the student's sense of identification as sophisticated adolescents. Handsome hard back, permanently bound, "record" books, clearly identifiable as college materials, were purchased. With few exceptions, the books were unbelievably well cared for and the notetaking was done equally tidily. By the end of the term, each student had produced a volume impressive in size. As time went on, however, the handsomeness of the volume and for unclear reasons the element of its permanency were the continuing incentive.

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* The course outline for Modern European History appears in Appendix C.

This project was regarded by those working longest with the students as a great and completely unexpected success. This suggests the possibility of utilizing in other forms what were felt to be the factors responsible for this success:

(a) possessing and using something handsome of one's own in the communal milieu of the institutionalized mental patient;

(b) increasing the student's badly deteriorated sense of worth through status symbols;

(c) using materials one could return to independently and when one felt ready to;

(d) using materials having an element of permanency.

This last factor was believed very important, and it was felt that it would be most useful to explore this aspect and its possible psychological basis further with psychiatrists in the hope of being able to transfer it to other materials.

(2) The Book Preview Party:

Having experienced the problem of the student's lack of intellectual motivation and their previous lack of independent intellectual initiative, it was known that an unusual and attractive appeal would be needed in order to induce the students to notice a new order of history books purchased for the school library. It was decided to attempt to accomplish the latter with a "book preview" party.

Having observed the student's disdain for and refusal to help plan previous schoolwide functions of any sort and their depressed and apathetic air, pains were taken to use some interesting, novel approach and to instill an air of cheerfulness and activity not dependent on the student's initiative. Therefore, instead of the usual and expected method of invitation ("Tomorrow there will be a...."), on the day preceding the party each student was handed a handsome invitation personally addressed to him. To sustain interest, when the students entered the school the next day they found gay paper butterflies arranged on the walls in procession to the door of the room where the party was being held. This room was cheerfully decorated. Plates of cookies were placed around on the book tables (to reach the cookies, the students had at least to glance over the books). Unusual beverages (spiced teas, Viennese coffee) and snacks were served. Effort was made to allow the students to prepare their own refreshments. The history teacher was on duty, chatting casually with the students and taking pains to get those who were not looking at the books to do so under the guise of pointing out first the most attractive of books with pictures.

In contrast to previous attempts of this sort, the careful plans and extra efforts had obvious positive results. The party had one totally unexpected effect; it marked the beginning of a startling improvement in the general atmosphere in the classrooms and in the school as a whole, clearly reinforcing the importance of the general atmosphere of the school and the student's feelings about the identification of the school.

The very unhappy, emotionally disturbed student is much more impressed by a school that is a cheerful place where happy events take place periodically than is a normal student (probably because such places are more frequent in the environment of the latter). It is equally important that extra efforts be made to make the school appear like a school. Since the students identify themselves almost entirely as mental patients, they find it difficult to picture a school for mental patients as a "real" or legitimate school. A chain effect can be created to break this syndrome. Numerous academically oriented activities and events can help counteract the student's reluctance to believe that the school is a school rather than another part of his therapeutic program. This positive identification of the school gives the students enough self-confidence and esteem to think of themselves as students. And not until the students think of themselves as students can a normal school atmosphere conducive to learning be established.

It is worth noting that many of the regular staff date the beginning of an improvement in the atmosphere of the school, a change in the attitude of the student's from a negative to a positive one, and the first appearance of an air of enthusiasm from this seemingly inconsequential "book preview party".

To conclude, we would again emphasize that events or activities similar to these do not necessarily have the same ratio of successful acceptance as in a normal school. It seems essential that such events be planned

(a) to contain a number of novel or unexpected elements and

(b) not to be dependent on student initiative for student activity or participation, at least at the outset.

(3) Use of slides in the Unit on the Napoleonic Era:

A large and varied number of slides were prepared for the unit on the Napoleonic era. These slides were used in three ways:

(a) As visual aids in the classroom presentation to attract the interest of the students and to impart, through visual reinforcement, some meaning or sense of reality to the remote persons and events under discussion;

(b) As a test to develop reflective, analytic, and integrative skills and to encourage more flexible thinking. A set of five parts of slides was shown to the students and they were asked to discern some connection between the content of the slides in each pair. This testing situation contrasted to the more usual structured method of asking questions which seek responses of memorized facts. In contrast, this less directed type testing encourages more flexible and speculative thinking.

This type of testing appeared popular with the students who seemed to enjoy making analyses and evaluations. (See Appendix D for the classroom teacher s more detailed account of the content and results of the test. The analysis of the cognitive psychologist consultant will be found in that part of the total report on basic research into cognitive processes.)

As this test and a similar one later in the unit on the Russian Revolution confirmed, however, the interest in analysis must be worked with if it is to develop beyond an initial rather superficial level. The teacher should specifically allot time for this. As this type of testting and learning situation seemed popular with the students it could be a most useful test in developing analytic and integrative skills.

(3) As a testing device in basic research. Since the test is a relatively open and unstructured one, the test answer also provide useful data on a student's cognitive functioning level and can give indication to to whether or not and to what degree his neurotic or psychotic disorders are influencing his intellectual functioning. (The data in this respect will be discussed elsewhere in the section on research in the student's basic cognitive processes.)

(4) Unit of the Unification of Italy:

The purpose of the special materials in this unit was to enable the student to see and reflect on the basic questions and significances involved. In order to do this, the question of "what is a nation" was introduced. A question of this sort also forced the student to see for himself something of the problem of communication in history i.e., the problem of understanding terms which though common impart little of their real or historical meaning to contemporary students except through reflection or analysis.

The teacher discussed various aspects of the problem on two levels.

What are some of the factors in the "making" of a nation and what are some of the obstacles to nationhood? This broad question and analytic tool was then used as a recurring theme and integrative tool, tying in this unit with later units, most particularly the unit on the contemporary emerging "new" nations.

One of the obstacles to nationhood discussed in conncetion with the question "What is a nation" i.e., regionalism, was chosen for closer and more varied study. The problem presented was that "regionalism" was one of those rather vague and meaningless terms used in history. An approach was developed to give the term some concrete, tangible meaning and in the process introduce to the students the concept of using analytic tools in their study of history. Again we tried to use a novel and unexpected approach and tool.

(a) Menus were prepared. These were made as attractive as possible to attract student interest. The students were told and shown how, by looking at something as simple as a recipe, a historian could tell much about a region, its economic and natural resources and its attendant wealth or poverty.

(b) To give concrete meaning to this lesson, to provide an element of mobility for the class, and to try still further to appeal to their interest, a meal of the dishes analyzed was then served to the students and teachers in another room. As much italianate atmosphere as possible was provided.

All the students dropped their customary facade of being blase and negative and appeared to enjoy the meal. The success of the experiment can be measured somewhat when it is noted that it was distinctly realized that there was a great possibility that the students, or a large portion of them, might refuse to attend at all or would respond with a negative attitude if they did.

(c) To provide mobility, to make the students think of history in broader terms, and to make the events under study more meaningful by providing a context of actual places, etc., a field trip having a connection with Italy was planned. Realizing that field trips were common occurrences in all schools and thus well known to the students, some element of novelty distinguishing this field trip from an ordinary field trip was needed. The Isabella Stewart Gardner Museum in Boston was chosen as the site of the visit since its architiectural style (i.e. Italian palazzo) was not the style commonly associated with museums, its collection, arrangements and atmosphere reflected the highly personal taste of its owner, and since it contained a large collection of beautiful flowers in its courtyard. It was believed that this would dispel immediately any stereotype supporting a negative attitude.

In order to build up interest, immediately prior to the trip pictures of the palazzo/Venetian style were passed around and its characteristics pointed out. Some background was given on the museum and some information about its founder.

Since emotionally disturbed students are extremely anxious, even dismayed at being identified as being mental patients in appearences in the "outside world", careful plans were made to avoid any such possibility. Initial signs of negativism, and boredom at the outset of the trip were soon replaced by attention and genuine interest.

At the end of the museum visit the students were taken to lunch in the North End, an Italian section of Boston. This provided a finale to the trip and give the students a feeling of an ethnically Italian neighborhood. The students' interest was so strong that even when acting blase, this could not be confused with the sullen negative attitude they had habitually shown.

(5) Art Unit on Impressionism:

An art unit on Impressionism was prepared to (1) show history again in broader perspective, in this instance showing a school of art as both an event in history and a reflection of certain historical trends which the students had been studying; (2) to encourage the use of reflective faculties through the showing of art slides and the discussion of the art style illustrated therein; (3) to interject visual material for the sake of variety in the unit being studied.

This unit was composed of three parts:

(a) A classroom lecture with extensive art slides of Impressionist painting was given. The teacher used simple on the spot illustrations and unusual materials such as a kaleidoscope and origami paper to illustrate some of the characteristics of Impressionism.

(b) An exhibit was held outside the classroom in the entrance and adjacent halls. This outside exhibit served several purposes. It supplemented the classroom presentation and provided a "saturation" atmosphere. It provided mobility for the subject and increased the scope of the exhibition. It presented another legitimate (i.e., academically connected) opportunity to provide a school-wide event which could affect the general atmosphere of the school (see earlier discussion of the Book Party).

The exhibit was composed of expected, usual materials, and unexpected, unusual materials. The latter contained for example, recreations of selected Impressionist still lifes flowers, fruits, napkins, etc., and articles showing the widespread influence of Impressionism. The unit was constructed during the day amidst the comings and goings of the students again in order to involve them in the activity.

One member of the staff prophesied that the fruit in the still lifes would be rowdily seized and eaten immediately. His prophecy was not fulfilled. This was significant in that it was the first time that a question of individual behavior had arisen and that behavior had been altered by the appearance of a positive group consensus Previously only a negative sort of consensus existed which sanctioned each individual's acting pretty much as he pleased or felt.

The history cadre was interested in obtaining the students' reactions to art used in connection with history lessons. Art could be a very useful material and visual aid in teaching history, especially art slides, since they are fairly easy to obtain. This particular art school, Impressionism, was a particularly fortunate choice with which to start as it is a "happy" school or style.

(c) Art Sorting Test -- An "open" unstructured art sorting test was devised and administered after a time lapse of approximately six weeks. A group of 55 art postcards of different styles, schools, periods and subjects was chosen. Each student was given the stack of cards and asked to divide them into groups or categories that seemed to the student "best" or most suitable. After establishing his categories and grouping the cards, the student was then asked to explain or define his subjective categories and the sorting. Sorting tests can yield useful data a in basic research on the students' cognitive processes (this will be discussed in the section of the overall dealing with basic research into cognitive fucctioning) and provided a test-like evaluation of the Impressionism unit which had been presented about 6 weeks previously. Although the Impressionist paintings represented among the cards had been used neither in the classroom lectures nor in the exhibit, the students with remarkably few arrors were able to distinguish the Impressionist paintings in the gourp. They often voluntarily and enthusiastically gave the reason for so identifying the cards, recalling with great accuracy points made in the classroom lecture.

This particular test was useful also, from the point of basic research, in that, despite its open and unstructured nature, (a useful situation in basic research) it provoked a manageable level of anxiety. The popularity of a sorting test used in conjunction with art history can be important from the standpoint of basic research in cognitive processes. Many of the standard tests in this area strongly resemble the standard psychological tests which emotionally disturbed adolescents have taken in great profusion. Students can thus be very suspicious of and hostile to cognitive testing, mistaking it for and fearing that it is simply more psychiatric testing under another guise.

(6) Exhibit in Conjunction with the Unit of 19th Century Imperialism:

This hall exhibit was to serve the same purposes as that in the unit of Impressionist art, i.e., to stimulate interest by providing mobility for the subject; to attract the student's interest by permeating a larger part of the student's environment; and to provide real meaning by using concrete, tangible materials connected with the subject matter. In contrast to the previous unit, however, this unit was to complement rather than supplement the classroom presentation by presenting some of the subjects under study not discussed in class. Imperialism's outgrowth from and effects upon European politics was the primary focus in class. The hall exhibits were:

(a) To show the range of cultures and civilizations conquered, with special emphasis on the higher ones;

(b) To show some of the contributions of these cultures to and influences upon Western culture;

(c) To show a culture or civilization as in part being determined or in some cases limited by certain natural forces

It was hoped that a successful carrying out of purposes b and c above would help to serve yet another purpose:

(d) To encourage a much needed sense of tolerance among the students. By showing that all the conquered societies were not obviously inferior ones, by raising the question of the definition of success or failure, by showing societies remarkably successful in some respects and failures in others. It was hoped to shake some of the student's sense of intolerance.

As wide a variety of articles as possible were used. To stimulate interest further and present yet another kind of stimuli connected to the subject of the exhibit, two additional activities were held in conjunction with the exhibit. On the first day a tea sampling ceremony was held. And on the second day, an Oriental soup sampling ceremony was held. The students responded to the exhibit with enthusiasm and interest.

(7) Unit on the Russian Reveolution:

The special materials or activities tested in this unit were as follows:

(a) Visual aids to reenforce and illustrate the long narrative being presented.

(b) A test, using eight pairs of slides, similar in purpose and execution to that test administered with slides used in conjunction with the lectures on Napoleon. This test served as a check on the findings of that first test and confirmed those findings, especially that of defining where further work was needed with the students. (See Appendix E)

(c) A field trip was taken to see "Dr. Zhivago", a movie taking place during and showing occurrences of the event under study. The reactions of the students were similarly favorable to those of the earlier field trip. The movie was used by the teacher as a teaching device for conveying certain rather intangible aspects of the Russian Revolution (such as the attitude of the revolutionaries toward the aristocracy) which are difficult to put across verbally in a purely factual manner.

(d) The reading by the class of selected biographical and fictional works, to deepen their understanding of some of the major figures both actual and representational, of the Revolution.

(8) Unit on the Nazi Germany Period and World War II

This unit presented a special problem as many of the events under discussion contained aspects of horror and could quite easily be depressing. Emotionally disturbed students have at times been psychologically unable or unwilling to handle such materials.

An effort was made to use a great variety of materials and approaches in order to provide a "saturation" atmosphere. Redords, tapes, slides, a film, fiction and non-fiction works were included in an attempt to convey a mood. Conveying a mood or atmosphere is one of the most difficult feats in teaching history, although in many cases it is essential to a real understanding of causation of certain events. In this unit, limited but varied slides were used as visual aids, in conjunction wihh the classroom presentation:

(a) Slides presenting the many aspects of German culture -- art, literature, etc. -- were shown to provide a background for and to raise certain provacative questions in relation to later materials in the unit. Such provocative background questions proved most useful in inducing or stimulating the student to exert his reflective and analytical faculties.

(b) Slides of Hitler's life and an hour movie ("The Twisted

Cross") were used to show the actual events under study and thus give them visual meaning and reinforcement,

(c) Recordings of Wagner and other great German composers were played to further stimulate interest and saturate the environment.

(d) Art slides showing Picasso's rather abstract representation of the horrors of World War in portraits of women were shown and analyzed in class. Having been presented with some of the horrors of war the students were now shown how a person, in this case an artist, might express this horror.

Emotionally disturbed students had previously upon occasion refused to work or become involved with art which had any unpleasant or depressing connotations. The question here was whether or not students could be induced to work with art depicting unpleasant occurrences if that art were placed in a well-defined historical context and was introduced after preparation and instruction in art as a tool in understanding and reflecting history that had taken place. In this case, despite a few natural exclamations of distaste, all the students worked with the art materials and participated in the discussion. This discussion took the appr ach of interpreting this kind of representational art as one might a poem (looking for symbols, etc.). This unit on interpreting and viewing modern art for purposes of history study thus gav. the students another illustration of an exercise in using analytic tools in history -- the excercise of which insures the student's active participation.

(9) Unit on the Emerging Nations in the Post-War World:

The emerging nations were discussed in a context of broad questions and themes rather than in terms of specifics. The question raised earlier in the unit on Italian unification, "What is a nation?" was applied again here and related to the problems of the emerging nations: comparisons wee drawn between the problems of the "new nations" and those of now well-established nations at a similar point in their history.

Many of the conditions described in these discussions involved common but abstract terms, which students tend to comprehend with little real meaning or reflection (terms such as poverty, traditional customs, modern versus traditional society, etc.). Pictures made into slides were used to convey by visual means and reinforcement some real comprehension of these terms, and to provide a focus for reflection. These slides were arranged into two groups. One showed specific everyday scenes in African life and by so doing illustrated the general aspects of modern vs. traditional societies. The other group showed specific scenes of life in India and the Orient and through them illustrated the general problems of the emerging nations. Two groups of slides were shown at the beginning of the unit. They thus provided background information and served as a basis for class discussion. In this discussion, the students evidenced interest and a real feeling for the problems involved in a nation's emergence.

(10) Unit to Test and Evaluate Student's Retention and Processing of Facts, Concepts and Materials Presented:

A test used during the early part of the year experimentally was further modified and administered again.

During one class, each student was given (as part of his review for final examinations) a set of test materials consisting of thirty unlabelled photographs of varying abstractness and concreteness, showing scenes of revolution (scenes of violence), possible cause of revolution, etc., and a booklet of ten blank pages entitled "Revolution is...". The student was asked to select from the set of photographs the ten which illustrated to him what revolution represents. He was to mount each picture and "caption" or write about it.

The purpose of this test was to determine the popularity and effectiveness of this approach as a review and as a tool encouraging reflection over and integration of knowledge learned, and to test the students' grasp, retention and integration of materials presented over the period of the course. The test provided data on which to eveluate the students' subjective selection, retention, and categorization of the material. The information obtained from such a test would give some indication of:

(a) the approximate academic level at which the student is operating (in relation to the academic level at which he might be expected to be operating if it were not for his illness);

(b) the subjective factors, the neurotic processes, operating within each student and the extent wo which they may be interfering with his objective study of history;

(c) each student's basic cognitive styles and the manner in which they are operating in his study of history.

Especially pertinent in any evaluation of the students choices of photographs and definitions is the extent to which he will choose a variety of representations in the photographs; the extent to which he will choose the more abstract rather than the more concrete representations; and the range of his definitions, i.e., whether he gives a preponderance of very narrow, literal interpretations or whether he sees the object to be defined as capable of a wide variety of definitions (e.g., revolution as the result of certain causes; revolution as an event of actual occurrences).

The student's reaction was most enthusiastic. They reflected for a long period over their choice of pictures and the caption or explanation they wrote for each.

Each student was interviewed privately by the teacher and asked to explain his reason for selecting and captioning each picture (i.e., what each picture represented to him, and the full meaning each caption was supposed to convey), and his reasons for ordering, or sequencing the pictures as he did.

A preliminary survey and oorrelation of the booklets and the in-depth interview would suggest that some seeming aberrations in the thinking of emotionally disturbed adolescents as expressed in their work might reflect instead an impreciseness in language. In some cases the students seemed unaware that their intended meaning was not conveyed to a reader. Many of the students did not seem aware of the nuances of language and seem too impulsive and unreflective in their choice of words to convey their meaning (and this despite the amount of time and concentration which they willingly spent on the project). A further avenue for evaluation would be a determination of their present ability to grasp cause and effect. A very preliminary survey of the booklets would suggest a breakdown in their intellectual handling of patterns of cause and effect. Some of their problems in the learning of history could easily be due to a garbled transmission between the cause and effect aspects of history.

(11) Unit on Role-Playing

At mid-point in the semester a game which the students were to play was introduced to the class ("Diplomacy", Games Research, Inc., Cambridge, Massachusetts). One purpose of this game playing was to test the student's reaction to this particular kind of approach or stimulus. Another was to see if it would enable the students to grasp some of the principles underlying the history su ject matter under study (power politics with -in 18th, 19th, and 20th century Europe). The game induced students to reflect over basic historical principles sufficiently to grasp and be able to apply their significance in the role of history which is one of the teacher's most difficult accomplishments, and it tested the effectiveness of role-playing in doing this. (It should also be noted that inducing students to participate in role-playing beyond a superficial level is in itself difficult. This suggests that to be rewarding, role-playing must be put in an interesting and more sophisticated form than commonly employed.

The game was introduced and played for the better part of one period, played another whole period, the next day, and then played for a few minutes at the beginning of each class for a period of a couple of weeks.

The students were excited by the prospect of the game. They all played it eagerly and seemed interested and patient enough to master the more elaborate than usual rules. There had been some concern about an unmanageable amount of anxiety being engendered by the competition of the game and by its"cheating" aspect (i.e., a student playing the part of a country was allowed to break his word or "treaty commitments" at will). Upon the advice of one of the psychiatrist consultants, this latter possibility and the legitimate reason for it (i.e., its actual occurrence in European diplomacy)were impressed upon the students prior to the beginning of the game.

The effectiveness of the game in imparting an understanding of underlying historical principles was evidenced only in student reaction. Almost all the students at some point expressed enlightenment over a point in diplomacy previously misunderstood in the textbook. Perhaps some future work could be done to devise a test which would mark the effectiveness of this particular game and/or approach with greater precision.

2. English

The first major project of the experimental curriculum unit in the tenth grade English class was that of script writing. It was chosen to be first because of the apportunity it offered to put into immediate operation the principle of immediate reward and feedback.

Having read the short story "Thus I Refute Beelzy" in class, the students were assigned the general task of transforming the story into a script. The lesson was broken down into a series of steps, and worksheets were prepared by the teacher for each of the sub-tasks. These included character analysis sheets, as will as separate ones for setting and tone of voice. This segmentation of tasks was based on the student's need for success, the success principle or failure prevention, as it were. *Each step in the lesson was a manageable task for each student.*

Through this production of a script, students were able to observe character development directly. In working out the stage directions, they would be better able to read plays with the skills necessary to the task.

After the class had compiled a set of notes describing the characters and planning the setting, they were given a "pre-script", a copy of all the dialogue in the story, with space provided for additions and/or changes. Each student was also given a folder bought specifically to contain the script. Through work in class, both at the blackboard and on the worksheets, a final shooting script was compiled and duplicated in its final form.

At the outset of the curriculum revision, each student was given a bound journal as part of a long-range plan for composition writing. *The basic objective was to give the students an opportunity to do free, unpoliced writing*. Later, as the collection of entries accumulated, some of them might provide material for a final composition.

Students were asked to make brief (1 page) daily entries on some thoughts they had had on a particular day or on something that they had done or seen. If at some point the teacher deemed it useful to have others read a particular entry, the student involved would be asked for permission to share his thoughts.

One advantage of this kind of daily assignment seemed to be that it would not be affected by irregular attendance, a familiar problem at the school. Students could keep their journals up-to-date whether in school or not. Another was the fact that students would not be deterred by demands for grammatical excellence; this was raw material and was not being judged by grammatical standards.

After reading *A Raisin in the Sun* and *Member of the Wedding* as a culmination of the script-writing, staging assignment, the class began the *major unit of the semester*, *composition writing via a problem-solving approach and its culmination in the preparation of a research project*.

One improtant objective of the entire composition unit was to give students *experience in writing without the experience of failure*. If success could be reinforced at every possible step, hopefully the students would be able to apply the processes learned for each sub-task to the major assignment of the research paper. Thus each lesson was designed to utilize all responses from the students.

The unit was begun by first presenting the class with a tangible, concrete problem. The teacher had ready for her class a glass container filled to the brim with fruit juice. This was placed on a set of papers on her desk. She asked the students how this container could be moved to another room without spilling a single drop of liquid. Several suggestions were given,some of which were made in jest. Each was recorded on the board. Then the possibilities were discussed for feasibility. After projecting the possible results of the various approaches, the class decided on reducing the contents of the container by sipping the liquid with a straw.

After the class solved the demonstration problem, the teacher listed on the board the actual steps involved in the problem-solving process. Here the process of abstraction begins. These are as follows.

1. State the problem.
2. List all possible solutions in any order. (An enumerative technique which will encourage students to juggle with ideas)
3. Choose some of the methods. (Students might have to choose the least of the evils rather than the best method)
4. Try best ones. (Or project some of them)
5. Effects -- analyze results.

After reviewing the steps the next day, the teacher presented a second episode involving a different concrete problem. She told of having spilled coffee on the desk and papers of the director of the school in the process of drinking coffee illicitly in his office. Using the five-step problem solving technique, the students developed a composition in class and were assigned the task of completing it for homework. The third episode of this lesson was a compositon based on a problem very real to the students,that of a no-smoking regulation in the school. Using the technique learned in class, the students wrote their views of the problem. Two were ultimately duplicated as open letters for distribution to the student body.

Four principles underlie this problem-solving approach to composition writing. Ths first is that of classification. The second is that seemingly foolish ideas can yield real solutions. The effect of circumstances on the usefulness of an idea was a third. The fourth is called the 5 and 10¢ Principle, from the theory that the more one has to choose from, the more likely he is to find what he likes or needs.

The major project, the original research paper, was then introduced. To point out the need for careful planning, the teacher assigned each student a writing task on how to "do" something. One boy gave directions on how to go from his home to the school. A girl wrote about how one locates a word in the dictionary. The main objective here was to show the students the need for and the existence of order in doing something. Through writing students might accept the idea of stages in the process of explaining and might see that complex things are possible if seen as a series of processes.

Although the study of problem-solving in the five given steps and the study of writing about processes are fundamental kinds of writing, they apply directly to the production of the original research paper. Problem-solving enables the student to state the research question as a problem. The process applies to the methodology of the research process.

Having received instruction in these two areas, the students were asked to choose their topics for original research. The were asked to outline the steps involved in the process of writing a paper. In addition, a member of the research staff spoke to the class about research methods. Because all of the students had chosen opinion-gathering as the basis for their papers, the methods appropriate to the gathering of such information were discussed. Following this preparatory stage students selected topics for research. An example of one topic was about a possible swimming pool for patients at the hospital. Another dealt with opinions from two age groups about a currently popular song. A third concerned four protest-type folk songs.

All these activites continued through to the beginning of February when the course in English 10 terminated, and English 11 began.

The grade eleven course had four components: 1) theme reading project in which students were introduced to the idea of theme, made tentative book selections, and began reading books outside of class, 2) in-class study of satire and humor, 3) classwork in rhetoric which involved students in discussion of rhetorical choices, and 4) classwork in grammar which consisted of one day a week study of transformational grammar. Transformational grammar was thought to be a potentially rich source of data on how students would react individually to an almost totally different approach to the study of grammar. The "new" grammar is rigorously inductive as compared to traditional grammar which is memory and rule oriented. The two central characteristics of the classwork were flexibility and autonomy; that is, it did not depend much upon any homework and did not have close day-to-day logic of a kind that would cause a pupil with irregular attendance to fall hopelessly behind.

For theme reading each student made out at the beginning of the semester a tentative list of books to be read outside the class. Then, in individual conferences with the teacher, the students committed themselves to a formal "contract" to read a certain number of books. The total reading of the six students is as follows: two students read fifteen or more books, three students read nine books, and one student read eight. As the semester progressed, pupils were responsible for reporting on the books they had finished, and they were eventually asked to group the books thematically.

Toward the end of the semester, the students gathered their thematic threads together in a carefully constructed writing assignment. The outside reading program was addressed to several built- in procedural problems of a hospital school. One is that students are often admitted to class in the middle of a semester after leaving their last English class in midstream. These pupils would have little difficulty adapting their previous course of study to the Reading Project, or, at the very least, they wouldn't have to "make up" a backlog of homework.

Another typical problem is absence. All too often hospital schedules, therapy appointments, and even the inability to understand a homework assignment cause students to miss class. The Reading Project is not seriously affected by class absence, and, since this is essentially the only homework in the course, the stigma of coming to school "unprepared" is lifted from the students. Pupils appear to be more willing to come to school consistently when they know they will not be humiliated on a given day for not doing homework.

Aside from these important procedural benefits, the Reading Project also develops a sense of what literary themes are. The students practice expressing thematic ideas in writing, and they finally gain respect for books and each other when they recommend back and forth.

The bulk of class time was spent analyzing and enjoying satire and humor. The semester started with a study of satire. The class read several satiric works that ranged from Comrade Don Camillo to Lewis Carroll's parody, Beautiful Soup; from Swift's Modest Proposal and Durrenmatt The Visit to Mad Magazine. The study of these satires led naturally to several class discussions on metaphor. The metaphor classes concentrated on helping the students see how and why an author talks about one thing in terms of another.

Two kinds ow writing assignments were used in the satire unit. The first was expository analysis.

Midpoint in the semester the class moved from satire to humor, and a variety of media - cartoons, drama, records, and weekly movies - were brought into the course. The students on many occasions considered various theories of humor, but most of the work in class was not theoretical. Students were encouraged to offer puns, jokes, exaggerated cliches, and funny dialogues. There was some vocabulary work which concentrated on teaching the technical terms necessary to a discussion of humor and satire. Analyzing clusters of words describing laughter was one class activity. Dramatizing and recording dramatic work was an integral part of the humor classwork. Students left alone with a tape recorder and scenes from Moliere's The Miser gave themselves intensive speech practice, and they recorded a scene of the play (with sound effects) of which they were proud.

The school made arrangements for the class to see a movie once a week, often a film the students had chosen. Again, the full range from the dark satire of Animal Farm to Under the Yum Yum Tree was represented. The students rated each film with respect to its humor, and then wrote a short, critical analysis.

Formal writing assignments were made: critical essays and the students' own samples of humor. As an example of the formal composition, the students were asked to comment on the comic and satiric elements of the two plays, The Visit and The Miser.

Although a more conventional introduction to satire would be by way of the study of humor, satire opened the course because the literature was more substantial and because it was important to give the students evidence that serious work was going to be undertaken in the course. Furthermore, ends of terms are times of great stress. Students have difficulty finishing things off; they fade out. Therefore, the easier, more engaging work should come last in the term.

The teaching of satire is essentially the teaching of an advanced reading skill. The student needs to be aware of tone and he needs to exercise his critical faculty at every turn, for, in order to read satire, which is merely an extended irony, the reader needs to be translating the signals he receives. He cannot merely absorb or memorize them and still get the meaning. The author does not mean what he "says" - he means something else.

Humor, too, involves a kind of intellectual activity more or less conscious, very similar in its bisociative nature to reading satire. Reading humor is very different from the intellectual activity required to memorize a French conjugation or to understand a Volkswagen manual. To "see a joke" one must see two things at once, or at least see the possibility of more than one point of view.

We assume that humor is intellectually and emotionally important to the students. Working from the premise that the return of a "sense of humor" is a sign of recovery in a patient, the work in humor gives excercise in the kind of thinking that the patient-student needs in his life. We are not teaching a sense of humor to people who have none, rather we are cultivating the exercise of that sense. As to the bearing on literature,there seem to be no humorous themes, but only humorous treatment of the same themes that flow in all literature.

To sum up,both the English and History curricula are planned to help the student move speedily from the particular concrete materials to appropriate abstractions, each new induction bringing order to a wider range of interesting particulars. The approach is based on a view of the learning cycle that holds that learning proceeds from curiosity to discovery to generalization to renewed curiosity. It is clear that materials alone will not produce learning. Just as crucial are the kinds of intellectual operations the student is required to perform on the material, and for this reason specific training in cognitive skills is planned for all experimental units.

CHAPTER III

THE STUDENTS AND THE EXPERIMENTAL CURRICULUM FINDINGS AND EVALUATION

The observations on cognitive and language functioning and on student reactions to the experimental curriculum units that follow are only preliminary. The work of the year being reported was devoted to "tooling up activities" - i.e., establishing the basic approaches to the experimental curriculum, identifying general measurement and evaluation procedures, and deciding on ways of gathering information.

Cognitive Style and Functioning:

Seventeen students completed both measures of reflection/impulsivity; the Matching Familiar Figures (MFF) and Visual Haptic (VH) tests. Four more students took only the MFF, but two of these did not complete it. The analyses include only those who completed the tests. Table I reports the median times and number of errors, and Table 2 reports standard scores on the MFF test. The VH test itself is not used in these scores since two students did not take it, and since it seems an inappropriately easy task for which the performances do not seem to involve reflection/impulsivity. Time and errors are negatively

TABLE I

Name	MFF Median Time	MFF Errors	VH Median Time	VH Errors
T	15.0	8	10.5	2
S	18.5	9	14.0	5
R	35.0	7	35.5	1
W	72.0	2	13.5	3
Q	46.0	5	14.5	0
P	89.0	0	15.0	0
O	60.0	3	----	-
N	13.5	11	8.5	1
M	23.0	11	9.0	2
L	(166.0)	(1)	----	-
K	67.5	5	7.5	1
J	73.5	1	9.0	3
I	101.5	8	36.5	4
H	79.5	5	11.5	0
G	39.5	14	----	-
F	47.0	7	12.5	2
E	86.5	0	19.0	3
D	42.0	12	21.0	2
C	27.5	17	9.0	2
B	53.5	4	12.5	0
A	(223.0)	(2)	----	-
MEAN	52.1	6.79	15.2	1.82

L and A completed only 7 MFF items, and their scores are not included in the analyses. (N. B.: Degree of student reflection/impulsivity is in terms of this group. Normative data are not yet available. There is, however, sufficient variance to justify an ordering of the present group along the continuum.)

TABLE 2

Reflection Z-Scores

The following scores are for MFF median time and errors. The composite score combines the separate z-scores such that a positive score indicates reflection. Each variable is assigned a weight of 1.0, so time and errors count equally.

Name	(A) Median Time Z-Score	(B) Errors Z-Score	Composite A+(-B)
T	-1.38	0.25	-1.63
S	-1.25	0.46	-1.71
R	-0.64	0.04	-0.68
W	0.74	-1.01	1.75
Q	-0.23	-0.37	0.14
P	1.38	-1.43	2.81
O	0.29	-0.80	1.09
N	-1.44	0.88	-2.32
M	-1.08	0.88	-1.96
K	0.57	-0.37	0.94
J	0.80	-1.22	2.02
I	1.84	0.25	1.59
H	1.02	-0.37	1.39
G	-0.47	1.51	-1.98
F	-0.19	0.04	-0.23
E	1.28	-1.43	2.71
D	-0.38	1.09	-1.47
C	-0.92	2.15	-3.07
B	0.05	-0.59	0.64

correlated for MFF, as they should be, but the correlation is positive for VH. Thus it seemed better not to use VH in the quantitative scores.

Turning to the exercises which were designed specifically to yield information about individual student's cognitive processes, the first of these was a variety of concept formation task in which the student was asked to select from 30 historical picture cards 10 which best represented his ideas of "revolution", a concept studied through examples of the French and Russian revolutions. He was then asked to arrange these sequentially in a gaily colored booklet, preceding each picture with a statement beginning "Revolution is...." Five students from the World History class took part in the exercise.

The second task was a more direct attempt to evaluate conceptual ability. Four students were shown five sets of two slides each presenting various aspects of the Napoleonic era. They were instructed to tell in what way the two slides in each set were alike. This task proved to be particularly valuable as a way of measuring the concreteness or abstractness of the student's conceptual functioning. Each answer was scored on a three point scale, as is done on the Similarities test on the WAIS, with 0 for a very concrete answer, 1 for an answer showing some ability to see an immediate relationship, and 2 for an answer indicating the capacity to perceive a general, abstract relationship. Scores ranged from 3 to 7 out of a possible 10 points. In addition to the scores, an examination of the sequence of scores and the responses suggested points of blocking and tendencies either to function in an increasingly more integrated level as the pressures of the task continued or to begin to disintegrate toward a more concrete performance. Further work is planned for this task as a promising approach to the study of task pressure on level of conceptual performance.

The third task concerned with cognitive functioning used the sorting method. It was in part designed to evaluate student response to an earlier unit on Impressionism. Six students were individually given a pack of 55 art postcards containing pictures from a wide variety of art periods and artists. They were instructed to sort them into piles in any way which seemed best to them. The task yielded information about individual levels of cognitive functioning, cognitive style, and conceptual flexibility. The data were examined for levels of concreteness-abstractness and for impulsivity-reflectivity. The number of groups into which students sorted the cards ranged from 6 to 13 and times ranged from roughly 10 minutes to about an hour to do the sorting. While no student's performance could be considered concrete in the sense that Goldstein and Scheerer used the term, one student's performance seemed to be heavily determined by his perceptual impressions of the cards rather than by detailed knowledge. In contrast, another student elaborated in much detail on his sortings and appeared to enjoy the chance to display his knowledge.

Because of time limitations conceptual flexibility was not explored in the depths it will be later. But each student was asked whether he saw any other ways to sort the cards. One student said that he could see many other possibilities; another said that he would subdivide his existing groupings. A third student said he could not possibly do it any other way. To be a valid test, students would need to do the actual re-sorting under increasing degrees of pressure to make changes.

To integrate the various cognitive findings, vignettes of seven students will be presented.*

> Student R ranks near the median, on the impulsive side of the MFF continuum. He is perhaps more reflective then his score indicates since he attempted to follow an orderly search plan but could not keep track of his decisions. His reflectivity was hindered by a short attention span, and/or thought intrusions that are distinct from his basic reflective style. His long median time on the VH offers some support to this hypothesis. In his "Revolution is...." booklet, student R goes beyond the specific event depicted to general statements about revolution. He showa a poetic sensitivity despite some puzzling misperceptions. His grade in history was F.
>
> Student P, who was the most reflective of the group approached the task carefully and with special attention to its requirements. He made no errors on either the MFF or VH tests. His caution seemed to compel him to spend equally long times on easy as well as hard questions. On the slide test, student P perceived little more than sequential relationships There was no indication of an understanding of the broad abstract historical scope. He seemed to find the task dif-

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*Specific student responses to both the "Revolution is..." booklet and the slide test will be given following the vignettes. All students described were in the Modern European History class.

ficult. This lack of ability to generalize was also apparent in student P's "Revolution is..." booklet. He made literal identifications of the pictures, interpreting them in terms of the slide exercise instructions rather then the task at hand. Student P showed no affective understanding, and treated the task as if it were a test of memory. He received grade A in both history courses.

Student O ranked close to the mean on the reflection/impulsivity test, being more reflective than not. Since he is a very bright student who appears highly motivated, he got the answere correct right away. Therefore, he is perhaps more reflective than his score indicates. On the slide test O never rose above description, although the quality of these descriptions is quite excellent. He was aware of historical significance and showed some sensitivity. His grade in the course was A.

Student N was the second most impulsive of the students tested. She tended to give up after making an initial error, and did not take the task seriously. Her time on the VH was nearly the fastest. In her "Revolution is..." booklet, student N began with literal identifications, but soon changed to more' affective interpretations. Three of her ten captions were purely affective, having little relevance to history. Her grade for the course was B-.

Student G ranked high on impulsivity. It was not merely her median time that determined her score, but rather her large number of errors. Although she faced the task intently, she apparently had difficulty in concentrating, and lacked confidence in her answers. On the "Revolution is..." exercise, Student G showed sensitivity to affective aspects of the picture as well as an understanding of the effects of revolution. Her grade in the course was D.

Student E obtained the second to the highest reflectivity score, and had no errors on the MFF. She, however, showed some flexibility by taking shorter time on easier questions. Despite her slow response time she made three errors on the VH test, indicating a difficulty in "visualizing". Student E's performance on the slide test yielded highly personalized responses. Her descriptions were literal, and void of historical relevance, although she apparently understood the task. Her concern with feelings rather than fact seemed to be detrimental to her understanding of history, although there was evidence that she could abstract further from the slides. Student E received grade B in the course.

Student A took so long on each item in the MFF that she completed only seven items. It would seem that had she finished she would have been on these measures the most reflective of the group. However, student A seemed to have difficulty in concentrating. In her "Revolution is..." booklet, she persisted in interpreting the majority of the pictures in terms of class struggle. These and her other answers indicated that she had learned the concept of revolution. She received C+ in her history course.

Samples of representative student responses to the "Revolution is..." booklet and to the slide exercises follow.

Student R whose pattern of responses on the MFF test suggest a basic reflective style despite his actual score (which may have resulted from an inability to concentrate well on alternatives) displayed a marked sensitivity to the emotional aspects of a revolution in his choice of pictures and captions in the "Revolution is..." booklet. Moreover, he went beyond the specific picture or event depicted to a more general statement about revolutions. This is in marked contrast to his class performance in which he seemed to indicate little retention or comprehension of course material. These are some of his picture selections and captions:

Picture: A triumphal procession in color.
Caption: Revolution is a gathering triumph.

Picture: Peasants dressing up in rich clothing while house burns in background.
Caption: Revolution is change.

Here are illustrations of a highly reflective student, student P, who tended to give literal captions to his selections of pictures for the revolution booklet.

Picture: Brilliant town in flames.
Caption: Burning of a town.

Picture: Mob storming a palace.
Caption: Storming of a palace.

Another student who, although he ranked only 7/10 on reflection, was judged to be more reflective than not because of his ability to keep working until he had a good answer produced this response to the slide material.

> Slide Set I:
> 1. Caricature of Napoleon's soldiers taking the booty of war.
>
> 2. Photograph of Napoleon's throne room.
>
> Response: The first slide shows Napoleon (or his men who represent him) plundering or that is, committing the atrocities of war. The second slide gives one the opposite feeling. The beauty of the throne room makes one think of Napoleon as European, of one man rule. The emptiness of the throne room is contrasted with the pillaging.
>
> Slide Set III
> 1. Romanticiaed portrait of Napoleon as First Consul.
>
> 2. Caricature of Napoleon and Josephine at a table gorging themselves on the plunder of Europe.
>
> Response: The first slide is of a handsome, thoughtful, quiet Napoleon. The second slide is of an ugly, obnoxious Napoleon, not quiet but agressive in his desires. Shows Josephine and Napoleon as people with tremendous appetites.

This student is bright and achieving in class, so that one would have predicted a quality of deeper historical interpretation in his responses. An explanation of his performance was offered by the student himself who said that when he compared the pictures, he was comparing them visually (as to looks, etc.) and not verbally (as if they were descriptive passages).

Following are examples from the "Revolution is..." booklet of a highly impulsive student, student N, who began giving literal identifications and then gave way to more general and affective interpretations.

Picture:	Picture of the fall of the Bastille.
Caption:	Outbreak of the Revolution. July 14, 1789, "Bastille Day". Fall of the Bastille.
Picture:	Picture of old man with hands folded around cup, back to crowd
Caption:	Poverty
Picture:	Picture of mob surrounding the king and his wife.
Caption:	Political cartoon. Overthrow of the king.
Picture:	Picture of men with raised rifles.
Caption:	Terror.
Picture:	Picture of street fighting.
Caption:	A sorrowful scene.

With only these limited data available in the present exploratory stage of the project, it is not possible to interpret findings on cognitive style and functioning beyond general trends and relationships.

One consistent relationship is that even the most reflective students as measured by the cognitive style test tended to give literal or descriptive interpretations to the historical visual material, both in the booklet and slide exercises. One possible explanation for this may be that the reflective student stays in contact with the material long enough to become aware of its perceptual qualities and reports at what seems to be a literal level. Another explanation is that with these students time spent on a problem may not be used productively to gain insight into deeper, more abstract meanings.

On the other hand more impulsive students (on the MFF) give answers which appear to be of a higher abstract quality , or to involve a high degree of affect or very general interpretation. On the basis of what is already known about the impulsive learner, generalized reactions would be in the predicted direction.

The most interesting aspect of these findings is that the reflective student is not giving what might be expected in terms of an abstract, or "good", response.

Language:

The purpose of the language testing, by way of review, was to disvover if an emotionally regressed patient would also show his regression in purely linguistic ways.

At the outset it must be stated that these tests did not much appeal to the patients. While normal subjects typically enjoy giving word associations, these emotionally disturbed adolescents felt threatened and negativistic when faced with this task. Unlike normal subjects, some of them refused or were unable to respond. This anxiety and hostility was perhaps a more important factor in their performance then the linguistic differences which were found.

In the word association test the students definitely did not respond like children to the stimulus words. Even one student, who gave no answer at all to 17 of the items, responded with the same part of speech to 16, or all but three of the items to which he responded. A student who answered them all, gave 33 same part of speech responses.

Responses to the test of etymology are another story. One student was incensed with these questions. They had no meaning to him. When asked why the afternoon is called the afternoon he said "That's what its called because that's what they named it". Another student gave the answers of a four year old to a number of items. He said a blackboard is so named "because you write on it", and a handkerchief is called that because "you can blow in it".

As in the vocabulary test there were some indications that students had their private meanings to certain words. One student defined an emerald as a "pearl". Another said that to conceal means "to close".

The sample of students tested was not large enough to produce significant statistics. At best, the results produce some significant thoughts. The word association test indicated that whatever intellectual faculty is needed to categorize words according to their part-of-speech is unimpaired in these students. The way they think about words, on the other hand, tends to be more juvenile than their age would warrant. This is perhaps a reflection on their ability to reason.

The area of vocabulary remains, for pedagogical reasons, the crucial one. There we are concerned not with the acquisition of new items, or with items they know they don't know, but rather with words they think they understand but do not. These students tend to be rather passive in the classroom and a lack of understanding can easily go unnoticed. In one grammar class last year, for instance, it was only after a long discussion of the passive voice that it turned out that half the class had no idea what "passive voice" meant. They thought it had something to do with the past tense. Yet no one had asked for a definition. These students have to learn to ask questions, and to respond to the teacher in a way that lets him know if he is communicating with them. Finding out if they are using words in an idiosyncratic way is a more difficult matter, but one that must be settled if they are to operate on an effective intellectual level. The vocabulary test, or a similar standardized measure, should be of help in evaluating the abilities of any student who seems unresponsive or unable to understand in class.

Evaluation of Student Learning:

While conventional methods to appraise student learning were used throughout all English and History courses of study in which experimental curricula were tried out, efforts were made to tap special sources of evaluative data. Mention has already been made of the promising results of the "Revolution is..." booklet and the slide exercise in history as techniques for determining levels of cognitive functioning. These methods can also be used to ascertain status and growth of basic concepts and their systematic organization. It was not possible at the end of the first year to do more than to identify these procedures as promising. They will be refined and tested during the second year of the project. However, as mentioned earlier, a preliminary study of the booklets and the records of the interviews held by the teacher to obtain the student's reasons for selecting and captioning each picture suggest an impulsive and imprecise use of language rather than a real inability to deal conceptually with historical material.

Evaluation of student learning thus far is based on direct observations, student critique of the curriculum units, and student work products from the ongoing classroom activity. In what follows, student reactions will be illustrated from these three sources of information

History

The Book Preview Party

Contrary to the common staff expectation (based on their extensive observation of and work with the students), the students did not simply grab the cookies and leave. Instead practically all stayed, chatted with each other and the teachers, looked at books, fixed and ate refreshments, and moved about the room (in contrast to the Christmas party where they for the most part sat around in rather gloomy listless little groups.) Several searched out a teacher to ask questions about the pineapple plant, Others were heard urging classmates to "try that Viennese coffee. You make it by..." Very quickly, one of the girls who had been the most negative and hostile of the students told the teacher "I know how to make cinnamon toast" and took over that job. Perhaps the best estimate of the party and its atmosphere was a remark by a late-arriving member of the staff, "You couldn't tell it from a happy party of normal teenagers".

Unit on the Unification of Italy — The Italian Meal

The students were very impressed with the appearance of the menus which were presented to them in class. One remarked with surprise "You mean some one went to all this trouble for us?" They analyzed the menus with enthusiasm and seemed excited when they appeared for the meal although a couple had complained loudly the day before when told there would be a change in their standard routine of leaving the school each day for lunch.

The Isabella Stewart Gardner Museum Trip

On the morning of this first field trip, prior to departure several of the students openly displayed boredom, and even disdain and antagonism to the project. They would answer fellow student's queries with "Oh, we're going on a field trip" in as sarcastic a tone as they could muster. The students were openly taken aback at the sight of the museum's flowers. Several kept exclaiming over the beauty of the flowers; others kept wandering around just looking at the flowers. Later while going through the museum itself many of the students would wander periodically to the windows and stare down at the courtyard. One girl did so and then looked at the room around her and said softly to hrself, "It's so beautiful. You forget that there really are beautiful things in the world".

After about ten minutes, one of the students suggested that they get a guide if possible so that they didn't just "muddle around". Those organizing the trip hesitated to arrange such a tour knowing the students' tendency to become easily bored and to reject what they consider stereotype activities. The other students joined in finding a regularly scheduled tour. The tour lasted about half an hour, and the students requested that they be allowed to browse for a while. This they did with great interest for about half an hour and left saying that they could have used more time. One of the students who had been most negative about coming, had to be dragged almost literally out of the museum, stating with almost every step her wish to come back and asking if a return trip could be arranged. The students had been relaxed, well-behaved, and poised.

The Diplomacy Game

The only student not becoming totally involved when the game was introduced was the student who refused any participation in class besides that of spectator. She did, however, pull up her chair and watch with interest the others play. The initial interest was high enough that several came back during recesses and after school to look at the board, plot "moves" and discuss alliances with fellow classmates. Some students brought students not in the class into the classroom to show them the game. Two were so keenly interested that they arranged for the class to gather for a few minutes after school to execute a couple of extra plays (both times several students not in the class came in to watch). The only disturbance was created by the most anxious student in the class, who blew up at another student and said "He"ll do anything to win -- he's a psychopath". After a few minutes she calmed down, apologized, and returned to the game (this despite the fact that earlier in the year in a similar incident, she had identified her inability to apologize to anyone.)

English

A teacher's end-of-the-year report on a student illustrates how the student's own productions revealed growth in the ability to adopt a flexible point of view crucial to the successful handling of satire and humor.

> In some ways it seemed that he learned more than the other
> members of the class. He was the only student in the class whom I had
> taught before (Spring 1965), and he was the only student in the class
> who had real writing problems. His writing improved in two areas.
> First, he began learning to develop ideas in expository writing.
> Second, and more important for the satire and humor program, he
> 1 learned to adopt a tone or a point of view which was not necessarily
> his own. Satire especially can't exist without flexibility of tone;

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in order to be ironic, one must mouth thoughts which contradict his own beliefs; in order to parody or burlesque something, one must imitate -- with just enough distortions and exaggeration -- that which to him may be disgusting. Last year I could never get him to assume even briefly a tone or a point of view which was not his. And this year he had great difficulty. But at least twice he succeeded. The first success was a "Modest Proposal" modeled after Swifts. It was his third attempt, and he completed it after a long conference with me in which I made the directions and the method as explicit as possible. I could tell when I was talking to him that he had finally "gotten the idea". Another fairly successful exercise was a "Cliche Conversation" between a psychiatrist and a patient. This assignment he did entirely on his own. It was uneven, but parts also mimicked successfully cliches used by psychiatrists and patients. The cliche conversation follows:

Interview with World Famous Doctor

Int: Well, doctor, how do you think medicine has been progressing in the last ten years.

Dr.: It has been progressing at a very rapid rate. We have made some of the most astounding discoveries in medical history.

Int: What did it take to make these discoverits?

Dr.: It took hard work, stern determination, a will to go on, and many nights burning the midnight oil.

Int: What's the future for a doctor like you?

Dr.: There's fame and fortune, wihh this rise in population the need for trained men has greatly increased.

Int: What are the rewards of being a doctor?

Dr.: The rewards are great, not always money-wise, but you have a feeling of giving and helping.

Int: To finish up this interview, how do you feel doctor?

Dr.: Feel? I haven't slept in four nights because of my obstetrics department. I miss most of my meals because of those lousy appointments and I haven't seen my wife awake in two weeks because I never get home before two in the morning.

Another student in an interview commented on the justifiability of basing almost an entire course around humor and satire:

Std: I don't know, we seem to be able to do an awful lot with it because there was so much connected. Not so much not just humor, that we started out discussing satire and then we naturally went into satirizing things with humor and then there was whole string of vocabulary that went along with puns, and satire and parody and burlesque and so forth. And there was awful lot of material to read on it and so it was pretty interesting. I don't know what, what the basis of each year, why one year is more advanced than the other but we... I don;t know, I think our class was pretty good.

Int: Yeah, but the question is if you go to sit down to write or think about a course, there are a lot of things that you could do. It's just as easy for me to conceive of giving a course in tragedy as in humor let's say. Now if I has going to decide to do humor instead of tragedy, there'd have to be a reason for it.

Std: Well... It's, it's the fact that along with reading this stuff, it's fun to read.

Int: Yeah. That's what I was thinking.

Std: And there's so, there's so many more aspects of humor, it seems, then there are of tragedy. I mean a tragic, a tragedy is, is pretty much just a sad or tragic story. But there's so many hundreds of aspects of humor and methods of getting there. And there's corny humor and low humor and high humor and the whole spiel.

Int: I don't know. I mean. It sounds to me like you really learned a lot from that.

Std: Well, it was interesting, that's the thing.

To sum up the present status of evaluation. Obviously, accounts such as those just given cannot be considered conclusive in any sense, but the overall impression of the impact of the experimental material is encouraging. Student interest was initiated and sustained; there is little doubt about that. Whether the material and the conscious pedagogical effort to involve students intellectually with it had real effects must be left to the work of the second year, the concern of the next chapter.

CHAPTER IV

THE PLAN FOR THE NEXT STAGE OF DEMONSTRATION AND RESEARCH

With the insights gained by this year's work, the project plans to concern itself somewhat more with basic cognitive research. The value of such information for curriculum planning has become incr [illegible] as experimental units have been developed. The project also plans to turn its attention to the identification and study of creative thinking. A third problem not focused on this year will be the designing of "classroom disruption-dispelling" techniques for the use of teachers of emotionally disturbed students.

The research team plans to investigate more fully the area of _cognitive functioning_, since it has become increasingly evident this year that the cadre needs the most complete evaluation of individual cognitive functioning available if maximally effective instructional methods are to be developed. The insights obtained from instructional interviews, classroom observations, experimental measures, and psychological test materials have pointed this up.

The current investigation in cognitive style and language so far will be further developed during the coming year. In addition, work on categorizing studies will be presented first, to be followed by the planned extensions in cognitive skills training and language.

1. Categorizing Behavior

Two measures of categorizing behavior are being adapted for use with the students. The first is a sorting task designed to yield information about the student's range of equivalences, the concreteness or abstractness of his conceptual approach to materials, the relative ease with which he categorizes materials presented verbally or pictorially, and his cognitive flexibility.

Two sets of cards, one with 30 line drawings of familiar objects, and the other with 30 words, make up the materials of the task. The subject is given a set of cards, either words or pictures to start with and told to sort them in whatever way seems best to him. When he had completed his sorting, the second pack is given to him with the same instructions, The subject is then asked to sort the cards in as many other ways as he can.

From this procedure a number of measures are obtainable. A scoring system had been devised for the number of concrete and abstract concepts a subject sorts, using Heidbreder's definitions of these terms.[5]

His range of equivalence is measured by the number of piles into which he sorts the cards, few groups indicating a wide equivalence range and many specific groupings representing a narrow equivalence rnnge. It is anticipated that a student with a broad equivalence range would be toward the impulsive end of the scale in cognitive style, while the student with a narrow range would be more toward the reflective and of the scale.

The relative difficulty of categorizing pictorial versus verbal materials has particular relevance for curriculum planning, since it is important to know which material is likely to give the student difficulty in functioning at an abstract level. One student may be so held by the specific concrete representations of the pictures that he is unable to percieve abstract relationships embodied in them, whereas comparable relationships presented in words may free him of this concreteness. On the other hand, for another student words may call forth such definite images that abstract relationships are rendered unavailable to him. Indications of such problems will be given by differences in concrete abstract scores on the two stimulus arrays, as well as relative amounts of time spent on the pictures and the words, and the student's subjective feelings of ease or difficulty in sorting the two packs.

The student's time scores will also be indicative of his general cognitive style, as will the amount of attention he gives th the details of the cards. An impulsive student, for example, will probably sort quickly, noting little more than the number of objects or words on it, whereas the reflective student may base his sortings on fine gradations of line widths or other small details of the cards which require a considered examination of them.

The student's conceptual flexibility will be measured by his capacity to move, in additional sortings, to sortings either more or less abstract than his first ones and to larger or smaller groupings. Students' comments and general behavior will provide added informatoon about their general approach to categorizing tasks.

The original set of materials[6] from which the present cards are being adapted were used with college students and eighth grade children, providing comparable data from older and younger sample. It is contemplated that an additional sample will be drawn from a normal high school population.

The second categorizing measure is a more direct investigation of the student's mode of conceptual approach by means of a set of three-dimensional and abstract stimulus forms. Stimulus forms were made from plaster, balsa wood, metal and plastic sponge, designed to accentuate different sensory attributes such as weight, texture, color, and shape. The forms are presented to the student in three situations. First, he is handed each form and asked to tell anything at all about it, the associative response. Next, he is again handed each form and asked to give a use for it, the functional response, a situation making more specific demands than the first one. The third time he is asked to sort the full set of forms by likes and dislikes, the affective response, giving reasons for his choices.

The tendencies of students to give responses based on previously formed associations will be compared with their tendencies to respond primarily to the immediate properties of the forms. In a response scored as associative, the student would say something like, "It reminds me of... It looks like..." In a perceptual response to the immediately given aspects of the form, he would say; e.g., "It's heavy...it's round.... it's rough." Responses in the first and second parts of the procedure are compared to determine whether there is a shift in modes of response when the student's attention is directed to the perceptual properties of the forms by asking for possible uses. Responses to the third, affective part of the study, are scored in terms of whether the reasons given for liking or disliking the forms are primarily based on the associations the student has given, or on their immediately perceived properties. For example, a student may say he likes a form because it looks like... or because it is round, etc.

Results of the study give information both about individual differences in categorizing behavior and the cognitive developmental level of the student. An earlier developmental study[7] using these materials with children and college students, indicated that adults tend to respond significantly more often with associations than do children of preschool and primary school age. Students in this sample, if their cognitive functioning was unimpared by emotional illness, would be expected to be much closer in their mode of response to adults than to young children. However, results from the language studies carried out on the project this year strongly suggest that these students do have at least pockets of regressed cognitive behavior. On this basis of these data then, it is hypothesized that Arlington School students may respond to these tasks more in the mode of children than adults.

In some instances where children give associative responses, the responses were strongly tinged with fantasy, as one would expect from a child who still has only limited ability to distinguish between fantasy and reality. In view of the emotional disturbance of the student group, such responses might also be predicted for them.

However, unlike young children, these students have had an opportunity to build-up over thirteen or more years a large reservoir of associations from which to draw. If they do respond in primarily perceptual terms, it may be because their previously formed conceptual structures have been rendered unavailable to them by their illness rather than because they have no associations to draw from. It is also possible that the stimulus forms may trigger a flood of associations which block the perception of the forms themselves.

The primary purpose of this study for the project is to gain additional information about the cognitive level at which these students are functioning and their modes of categorization. It is expected that with information such as this it will be possible to tailor instructional methods more directly to the needs of the emotionally disturbed adolescent.

It is also anticipated that these findings will relate to the work on cognitive style and creativity. The "perceptual" student may be the one who lets himself interact long enough with the forms to become aware of their perceptual properties; i.e., the reflective student. The "associative" student may be the one who dismisses the forms quickly with the first association. Time scores can be kept as additional checks on an impulsive-reflective reaction score.

In very early pilot studies the stimulus forms were shown to graduate art and architecture students. These students frequently displayed a kind of immediate pleasure and interaction with the forms which was not often seen among later subjects, regardless of age. On the basis of these observations, it is hypothesized that students scoring high on the Wallach Kogan creativity measures to be described will be more "perceptual" in their responses to these tasks than other students. In addition, they will probably give more fantasy responses. A control group of normal adolescents also will be tested to provide comparative data.

2. Cognitive Style

The project will continue to concern itself with the four questions which guided research on cognitive style this year, cognitive style in relation to

a) particular subject matter tasks.

b) effect on student's efficiency as a learner

c) interactions of individual cognitive styles in the classroom.

d) different kinds of emotional illness

With individual styles identified through Kagan's instruments and correlated with other cognitive functioning and performance data, it will be possible to examine these questions in more depth.

On the basis of increased knowledge both about the requirements of the subject matter tasks and student cognitive styles, the project team plans to design and try out additional experimental methods to study the subject matter -- cognitive style relationship. English and history have shown a range of contrasts in the kinds of capacities needed, as well as complementing each other. The second question on learning efficiency can also be subjected to more intensive study on the basis of cognitive style identifications.

Work on interactions between different cognitive styles has so far been based on the observance of such interactions. Next year a greater attempt will be made to study the effects through direct manipulation of the curriculum to foster beneficial effects. The role of the teacher in recognizing and using such interactions effectively is, of course, crucial and will be a major focal point of study.

Also the relationship of cognitive style to type of emotional illness will receive more concentrated study. Two major questions, both involving the persistence or permanence of cognitive styles, are being asked. First, is a person's cognitive style an aspect of personality functioning which endures even through the onset of emotional illness? While other explanations are possible, absence of a high degree of correlation between cognitive style and type of emotional illness would suggest this possiblity.

Second, how pervasive is a given style, or the strength of its expression, from one behavior setting to another or from one kind of task to another? Student performances on the Kagan measures will be correlated with data obtained from the classroom, the residential halls, nurses' records, and psychiatric records to supply information about this question.

In the original proposal strong interest was expressed in the identification and study of creative thinking among students in the project sample. Teachers have observed that the students at Arlington School can be highly creative in their classroom work. Observational and interview data have supported the view that these students can perceive and structure materials and ideas in a creative way.

On the other hand, researchers and teachers have often been impressed by the degree of support these students seem to need in order to engage in creative activities. Even a normal student requires some support and assurance that his "way-out" thinking is being accepted and valued in the academic setting. The emotionally disturbed adolescent, however, appears to be additionally handicapped in expressing and profiting from his creativeness, both because he fears criticism and rejection by peers and teachers and because he seems to fear the release of internal constraints necessary to the creative process. There are indications, then, of better than average creative potential in some of the students, but also of greater than average difficulty in expressing and developing it.

With this realization the project plans to move more actively into creativity identification and training during the coming year. Some steps in this direction have already been taken in the English and History programs. The English students' journals, desribed earlier, were an attempt to get them engaged in activity where they would not be concerned about outside evaluation. In the history unit at one point the attempt was made to create a freer atmosphere by having the students gather around a large table to discuss biographical and fictional material related to the Russian Revolution while they drank coffee.

While very exploratory in nature, these two instances are examples of prerequisites Wallach and Kogan[8] see as essentialfor creative functioning. In their recently published study of creative modes of thinking in fifth graders, there are stimulating implications for anyone interested in fostering optimal cognitive development. They point out that the creative mode of thinking may be greatly inhibited if the child believes he is being evaluated or tested. Such a belief holds him to the "safe" response rather than the bold creative response he might otherwise make. Creativity as they define it is evidenced by a) the ability to produce a large number of associations and b) to give unique associations. In order to be creative in this manner, the student must have an environment which is "free from or minimally influenced by the stresses that arise from academic evaluation and a fear of the consequences of error". He must be provided with an atmosphere which will allow him to be "playful" in the realm of associations and ideas.

Wallach and Kogan have developed five measures of creativity which the project plans tl adapt for use in the study of creativity in its students. The first asks the student to name as many things as he can think of in each of the following areas: a) round things, b) things that make a noise, c) square things, and d) things that move on wheels. The second test, a test of alternate uses, asks the student to give all the different ways he can think of to use a variety of objects; e.g., knife, cork, shoe, chair. In a test of similarities, he is asked to give as many ways as he can in which ten sets of objects are alike: e.g., potato and carrot, cat and mouse, milk and meat. The last two tests are visual, one of them presenting the student with a series of eight abstract geometrical patterns and the other presenting him with lines of various kinds. For each pattern he is asked to give as many things as he thinks it could be; for each line as many things as it makes him think of. All tests are scored for total number of responses and for uniqueness of the response in relation to all the responses given by students in the study

The first step of the program being devised by the project will be to use these measures, modifying them where necessary to better fit the adolescent level. In administering there measures and in subsequent individual work with the students, a relaxed, informal, non-classroom environment will be utilized. Every effor must be made to convince the student that the measures are non-evaluative and non-clinical in purpose. The measures will also be administered to a regular high school group as a comparison group.

As the project is interested not only in identifying creativity, but in encouraging its further developement among these students, the next step of the program will be to develop materials and methods which encourage the kind of "playful" associative approach found to be characteristic of successful creative workers in many fields. It is expected that this training will take place both in individual sessions and as part of the experimental calssroom units in English and history.

Evaluation of the results of the program will come from classroom observations, teacher interviews, student work, and a readministration of the original measures of creativity. Considering the severe blocking many of these students seem to experience in accepting and exploring initially good ideas, even moderate success here would be promising for creativity training with normal high school students

Language studies this year have been particularly valuable in pointing up the many and varied obstacles to understanding and communicating which these students have. Next year's plans are to continue the use of the language assessment techniques developed this year and relating findings to direct learning and instructional processes. Mention of specific concerns in language functioning has already been made.

With increasingly precise identification of student language problems, the cadre will turn to the task of designing trial curricula to overcome specific handicaps. This training will take place both in the classroom and in instructional interviews.

It is clear that no curriculum can supply all the answers to the problems of teaching emotionally disturbed adolescents. While the teacher, as perceived by this project, must not become a teacher-therapist she must be prepared for and able to handle the inevitable disruptive effects the students' problems will have on their learning processes and classroom interactions. This is essential if she is to represent a kind of island of "outside" school reality, complete with adequate work standards and expectations, which these students require if they are to receive high school diplomas or return to a regular high school setting. She can not allow herself to "water down" the curriculum on the one hand; on the other hand she will be failing to teach any kind of curriculum if the entire class on a particular day is withdrawn or hostile because of some event taking place outside the classroom.

While much of the teacher's effectiveness in handling the student's emotional and motivational problems in relation to their learning processes depends on her personal sensitivity and understanding, both teachers and project researchers have asked themselves whether some tools and techniques might be evolved which the teacher could have at her disposal.

In designing methods which the teacher can use to maintain class equilibrium in the face of such problems, the cadre plans to draw from research in social psychology, education, clinical psychology, and psychiatry for insights relevant to the problem of group interactions. Because of the inclusive nature of the problem, each of these disciplines can throw light on a different aspect of the problem. The recent work in social psychology on group dynamics and small group behavior is a source of information if the problem is seen from the angle of group behavior. The insights of educators in the areas of classroom discipline and student participation offer much when this group is viewed as a class of students. In addition, they are a group of emotionally disturbed students, so that insights from clinical psychology and psychiatry become indispensible to a full scale attack on the problem.

This multi-faceted approach reaffirms the basic thesis of the project that a team, a cadre, composed of members of a variety of related disciplines is essential to a full understanding of the complexities involved in teaching emotionally disturbed adolescentss

While designed to give the students solid training in English and history, the experimental units developed this year attempted to use methods of instruction built around the particular problems of learning and recall evidenced by these emotionally distrubed students. The English unit planners endeavored to provide immediate reward and feedback in view of student inability to work for deferred goals, and to present tasks in ways which seemed manageable to the student. History planners focused more on cognitive skills training, stressing particualrly inductive and deductive processes in handling historical materials. While results are very tentative at this point, improved student interest and participation indicate that such a problem-centered approach to curriculum planning is successful enough to warrant the extension and refinement of the present units and the development of new ones during the coming year.

On the basis of the first year exploratory work, it will be possible to design units which differ more precisely along specified dimensions; e.g., abstractions or concreteness of the media used or number and pacing of illustrative materials used, so that comparison of results in student's learning can be made.

In addition to units for use in the classroom, individualized cognitive skills training units will be devised and used with individual students.in instructional interviews, as their specific individual learning problems are identified. While the student may well profit from this independent training, it is anticipated that much also can be learned about learning and recall problems of the emotionally disturbed adolescent from this kind of close-up view.

A question of theoretical as well as practical importance is that of recall, particularly over a period of time. It is possible that a student may learn material correctly in the first place, only to have it become seriously distorted after a week or a month, so that it is no longer useful to him. This is a problem which the team plans to investigate through evaluation techniques built into the curriculum units as well as in instructional interviews.

A continuing theme in future planning will be the role of defence in the learning processes of these students. While defensive behavior will receive its major investigation in the study of disruption dispelling techniques proposed earlier, curriculum planners must take it into account in considering kinds of methods and materials to be used.

Observations to date have identified a number of kinds and effects of defensive styles, but a more specific study of their effects is needed. In conclusion, the main routes for the work of the second year have been charted. The task of the cadre is to make the journey as productive as possible, gathering useful insights into better ways of teaching the emotionally disturbed

FOOTNOTES

1. Kagan, Jerry, H.A. Moss, and I.E. Sigel, "The Psychological Significance of Conceptual Styles," ms latter published in Wright, J.C. and J. Nagen, eds., *Monograph Soc. Res. Child Development*, Vol. 28, No. 2, 1963, pp. 73-112

2. Bruner, Jerome, "The Act of Discovery," Harvard Educational Review, Winter, 1961, p.31
   Bruner, Jerome, and Henle, Mary, "Learning About Learning", Washington, U.S. Government Printing Office, 1966

3. This discussion of cognitive style is based on a personal presentation by Dr. Jerry Kagan, Harvard University, to the research staff.

4. Kagan, Jerry, H.A. Moss, and I.E. Sigel, "The Psychological Significance of Conceptual Styles," ms latter published in Wright, J.C., and J. Nagen, eds., *Monograph Soc. Res. Child Development*., Vol. 28, No. 2., 1963, pp. 73 - 112

5. Heidbreder, E., *Toward a Dynamic Theory of Cognition*, Psychological Review, LII (1945), 1-22

6. This material has been developed by Dr. Betty R. Stewart of the project staff. The comparative data were obtained in connection with research conducted at the University of Oregon and Vassar College.

7. Stewart, B.R., *Developmental Aspects of Categorizing Behavior*, Unpub. NIH Grant MH07919-01, 1963, Wheaton College, Norton, Mass.

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APPENDIX A

Word Association

Name ______________________ Sex ___ Age ___ Grade _____

School _______ Teacher ________

1. table __________N
2. quickly __________Adv
3. to skate__________Tv
4. dark __________Adj
5. milk __________Mn
6. to send__________Tv
7. house __________N
8. slowly__________Adv
9. to come__________Iv
10. soft__________Adj
11. water__________Mn
12. to bring__________Tv
13. foot__________N
14. sadly__________Adv
15. to live__________Iv
16. cold__________Adj
17. sand__________Mn
18. to find__________Tv
19. needle__________N
30. now__________Adv
21. to walk__________Iv
22. white__________Adj
23. sugar__________Mn
24. to take__________Tv

22. white__________Adj
23. sugar__________Mn
24. to take__________Tv
25. apple__________N
26. softly__________Adv
27. to laugh__________Iv
28. sweet__________Adj
29. air__________Mn
30. to hit__________Tv
31. doctor__________N
32. gently__________Adv
33. to stand __________Iv
34. hard__________Adj
35. cheese__________Mn
36. to invite__________Tv

	Same	Same Major	Diff.	Blnk. or Repeat.
N				
Adv				
Iv				
Adj				
Mn				
Tv				
Total				

APPENDIX A (cont.)

Etymology

Name ______________________________

Why do you think (the)(a) _____is called (the) (a) ______?

1. fingerprint____
2. birthday____
3. breakfast____
4. handkerchief____
5. holiday____
6. earthquake____
7. medicare____
8. windshield____
9. Thanksgiving____
10. Friday____

APPENDIX A (cont.)

Vocabulary

Name________________________________

Give the best short definition of the underlined word.

1. Emerald. He bought her an emerald.
2. Oval. There is an Oval Room in the White House.
3. Deface. He defaced school property.
4. Century. In a century we will be visiting other planets
5. Desert. Few plants grow in the desert.
6. Burden. The big man was quite a burden to the donkey.
7. Compliment. He paid her a compliment.
8. Donation. His donation was generous.
9. Conceal. He tried to conceal the package.
10. Indestructible. There is no such thing as an indestructible toy.

APPENDIX B

On the Uses of the Instructional Interview

The following notes on the uses of the instructional interview are first suggestions. While they cover a wide range of educational activities relevant to our project, there are undoubtedly many others that will come to mind as we work along.

1) De-briefing: the instructional interview is an effective instrument for *diagnosing the current status of the learner*; this includes the discovery of difficulties that had not been suspected.

During the summer of 1964, the writer used the instructional interview to gather information about the cognitive status of seventh graders. More recently it was used in close connection with a teaching situation, to collect information specifically relevant to that situation. It is a powerful tool for this purpose. One of the difficulties in teaching at any level is that one cannot anticipate the ways in which one will be misunderstood; indeed one often cannot find out about misunderstandings until much later. *The instructional interview may be a device for anticipating misunderstandings.*

We hope to find ways of using the interview also to *test the improvement* of children as a course of studies progresses.

2) *Research Instrument*: the instructional interview is a valuable research instrument. Its flexibility, the opportunity it provides for intensive study of the individual, the richness of observation it permits--all are important for the exploration of new problems. Of course the interview lacks controls and built-in self-corrective devices; it is not to be viewed as a substitute for the experiment.

3) *A preparation for teaching*: The "lesson plan" developed in our interviews might provide the basis for a lesson plan to be used in class. Other lessons can, of course, be tried out in the interview situation.

4) *An actual teaching devide*: The students in this kind of interview have a serious intellectual conversation with an adult. This in itself is perhaps an important learning experience. It offes the model of an adult concerned with working out an intellectual problem; it provides practice in problem solving as well as an opportunity for self-editing.

APPENDIX B (cont.)

As a teaching device, the interview might also be used to help bring the slower children to a level at which they can keep up with the class.

Model exercises might be used in the interview situation.

5) _A device for pushing children to the limit of their understanding_: For any individual child, conditions of the ordinary classroom provide neither the opportunities for expression, the immediate and continued feedback, nor the demands for continued concentration on a problem that the interview offers. These are probably some of the conditions under which a child will perform at his limit.

The interview may be used to explore how far both bright and slow students can go in their understanding.

Dr. Helen Kenney

September 21, 1965

APPENDIX C

MODERN EUROPEAN HISTORY

Outline Spring, 1966

I. Eighteenth Century February 7 - 18

A. The Enlightenment

B. The French Revolution

We worked on the ideas and ideals of these two topics: the effect of the Enlightenment on France; the effect of the French Revolution on France; and the effect on the rest of Europe. Development of nationalism, upset of the existing order, changed relation between the individual and the society, development of revolutionary ideals (liberty, equality, fraternity).

II. Nineteenth Century February 28 - March 3

A. Napoleon and the Napoleonic Era
    Rise to power
    Domestic accomplishments
    Foreign involvement
    Downfall
    Legacy

1. To investigate his role as successor to the French Revolution -- did he continue the revolutionary ideals, or ignore them; did he aid democracy?

2. To investigate his effect on Europe, on the development of nationalism in other nations; on the power structure of Europe; on the transporting of French revolutionary ideals abroad.

3. Possibilities for work on the "hero" in history? great men changing course of history.

B. Liberalism vs. Reaction, 1815-1850 March 4 - 9
    Congress of Vienna -- Metternich System
    Revolutions of 1830
    Revolutions of 1848

1. To see the period as an attempt to restore the traditional power structure of Europe.

2. To see the period as an unsuccessful attempt to turn the clock back and deny nationalism, liberalism, and revolutionary ideals

C. Economic Revolutions — Through March 18

The Industrial Revolution -- origins, developments, economic and social consequences of Industrialization

Responses to Industrialization -- liberalism, socialism, Marxism, anarchism.

1. To show the intellectual responses to the great social, economic, and political changes which occurred in Europe as a result of scientific discoveries.

2. To show the economic, political, and social implications of these ideas.

D. Europe -- 1850-1900 Major Trends — March 21 - 25

Britain, France
Unification of Italy, Germany
Russia, Austro-Hungarian Empire

1. To trace the development of democracy, parliamentary government, and liberalism in Western Europe.

2. To see the triumph of nationalism in the unifications of Italy and Germany. And to discover the effect of some of the power structure of Europe.

3. To see the continuation of the autocratic, undemocratic strain in Europe.

E. Intellecuual ferment -- 1850-1900

Science	Major individuals
Philosophy	Darwin, Nietzsche
The Arts	Freud, Wagner, Impressionists

1. To show how the 19th century thinkers and intellectuals qualified, adapted, and rejected the basic Enlightenment precepts concerning reason, natural law, and progress.

2. To show the impact of the intellectual ferment on the thinking and actions of serveral generations, i.e., role of ideas in shaping events, and in shaping the political, social, and economic respones to events.

F. Imperialism — April 8 - 15 (to Spring vacation)

Nature of and causes
Powers involved and areas included
Justification of imperialism
Results

1. To show imperialism as a political and economic rivalry among the European nations.

2. To show imperialism as an extension of that power rivalry, and as a contributing factor to the power rivalry.

3. To show the relation of imperialism to nationalism of the European countries.

4. To show imperialism as a cause of World War I.

III. Twentieth Century April 25 - 29

A. World War I
Background and Causes
Developments
Outcome

1. To see the war as a result of many factors including nationalism, imperialism, power politics.

2. To see the effect of the European nations of the War.

B. Russian Revolution
Background
Events
Significance

1. To see the putting into practice of revolutionary socialism.

2. To see the advent of modern totalitarianism and rejection of democratic and liberal ideas.

3. To show the tremendous importance of the revolution in the subsequent history of Europe.

4. To investigate again the theme of "hero" or great man in history.

C. Failure of the Peace--the Interwar Years May 10 - 18
Weakness of the democracies
Rise of totalitarianism--the Dictators
Appeasement and the Path to War

1. To show how the peace settlement ending WWI carried the seeds of WWII.

2. To show the role of economic conditions, social factors, and ideas in the dictators' accession to power

3. To show the force of nationalism in the policies of Italy, Germany, Japan in the '30's.

4. To show the shifts in the power structure in Europe

D. World War II
   Causes
   Developments
   Major international conferences
   Outcome

1. To show that post-war world is in large part the result of the War's outcome.

2. To show increasing importance of Russia during the War.

3. To show the increasing importance of United States during the war.

4. To show War as result of aggressive and imperialistic policies of the dictators.

E. Post-War World--1945-1966 May 26 - June 20
   Cold War
   Emerging Nations
   UN
   System of Alliances

1 What are the major problems of today.

MODERN EUROPEAN HISTORY

Spring, 1966

Objectives:

1. To enable students to identify the major problems confronting Europe today. The major problem can be seen as the polarization of power into two blocs, with a third bloc of emerging nations as a growing force.

2. To enable students to understand the origins of these major problems, in the history of Europe since 1700.

3. To make students realize that contemporary problems are the result of the interaction of complex forces -- political, economic, social and intellectual.

4. To foster an objective approach to these problems.

5. To encourage objectivity in seeking solutions, while being aware that there are no "easy" answers.

APPENDIX D

Classroom teacher's account of the use of slides to create an unstructured type testing situation in the unit of the Napoleonic era.

5 sets of two slides were shown, preceded by one sample set. The instructions in each case were: What is the relationship between the two slides. This relationship was to be written down by the student. It should be noted that the teacher explicitly identified each slide shown, (This is Napoleon as first consul,etc.) In the last set of slides the students were asked to note as many relationships as possible between the two slides.

The sets of slides were as follows:

Sample Set --
1. Portrait of Louis XVI
2. Painting of Fall of Bastille

Set I
1. Caricature of Napoleon's soldiers taking the booty of war.
2. Photograph of Napoleon's throne room.

Set II
1. Romanticized painting of Napoleon as a general on horseback.
2. Goya's caricatures of the horrors of war.

SetIIII
1. Romanticized portrait of Napoleon as First Consul.
2. Caricature of Napoleon and Josephine at a table gorging themselves on the plunder of Europe.

Set IV
1. Painting of Napoleon presenting his infant son to a Paris crowd.
2. Cartoon of Napoleon being forced to sign abdication papers.

Set V
1. Painting of Napoleon as First Consul
2. Portrait of Louis XVI.

It was stated at the start that there were no "right answers"-- a variety of relationships existed and different students might note different relationships. The teacher also stated that it was possible one wouldn't immediately see a relationship between the two, but should think about it for a while.

The average was 4-5 minutes per set of slides writing (working) time by the students. The exercise was generally well received although one student was uninvolved and quite unreceptive to the whole thing.

APPENDIX E

Slide Test on Russian Revolution Devised and Administered by History Teacher

Instructions: To compare slides

Sets of Slides

Set I.

1. Photograph of Marx — Compare these two slides
2. Photograph of Lenin

Set II — Compare these two slides

1. Photograph of Peasant family (a happy, smiling "portrait")
2. Portrait of Russian royal family

Set III

Instructions: Teacher Stated "Ballots and bullets--contrast the historical principles involved.

1. Photograph of an old woman handing in her ballot at a voting place
2. Painting of men taking guns.

Set IV

Instructions: Identify and relate these 2 slides

1. Photograph of Rasputin
2. Painting of portrait of royal family

Set V.

Instructions: What do you think these are pictures of?

1. Photograph of soldiers shooting men (picture of WWI Russian officers shooting their won soldiers who refused to fight.)
2. Photograph of street massacre by police.

Set VI

1. Statue of Lenin in an assembly hall.
2. Idealized painting of Lenin with outstretched hand.

Instructions: Identify the subject of these pictures. Based on the kind of representation you see here how do you think the population viewed this subject.

Set VII

Instructions: What might .these be pictures of?

1. Photographs of Lenin at a train station, picturing his return to Russia April, 1917.
2. Photograph of the Red Sunday Massacre.

Set VIII

Instructions: What is the relationship between these two men?

1. Picture of Nicholas II
2. Picture of Lenin